

# Service Manual

**PIONEER**  
The Art of Entertainment

● DEH-P815/UC



ORDER NO.  
**CRT1674**

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH FM/AM TUNER

# DEH-P815

UC

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH RDS TUNER

# DEH-P815RDS

EW

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH FM/AM TUNER

# DEH-P813

ES



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**COMPACT**  
**disc**  
DIGITAL AUDIO

- See the service manual CX-540(CRT1574) for the CD mechanism description, disassembly and circuit description.
- The CD mechanism employed in this model is one of CX-569 series.

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### ● CD Player Service Precautions

1. For pickup unit (CGY1031) handling, please refer to "Disassembly" (CX-540 Service Manual CRT1574). During replacement, handling precautions shall be taken to prevent an electrostatic discharge (protection by a short pin).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.

## SAFETY INFORMATION (EW MODEL)

### 1. Safety Precautions for those who Service this Unit.

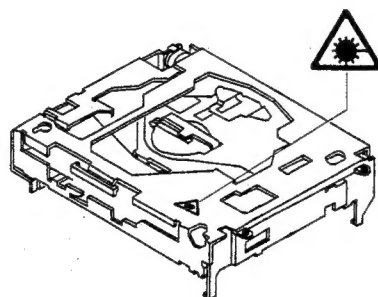
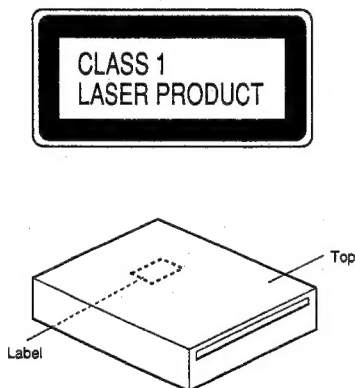
- Follow the adjustment steps (see pages 22 through 32) in the service manual when servicing this unit. When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.

#### Caution:

1. During repair or tests, minimum distance of 13cm from the focus lens must be kept.
2. During repair or tests, do not view laser beam for 10 seconds or longer.

2. A "CLASS 1 LASER PRODUCT" label is affixed to the rear of the player.

3. The triangular label is attached to the mechanism unit frame.



### 4. Specifications of Laser Diode

Specifications of laser radiation fields to which human access is possible during service.

Wavelength = 785 nanometers

Radiant power = 69.7 microwatts (Through a circular aperture stop having a diameter of 80 millimeters)  
0.55 microwatts (Through a circular aperture stop having a diameter of 7 millimeters)

## SAFETY INFORMATION (UC MODEL)

### CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

### WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

## 1. SPECIFICATIONS

### ● DEH-P815RDS/EW

#### General

Power source ..... 14.4 V DC (10.8 — 15.6 V allowable)  
Grounding system ..... Negative type  
Max. current consumption ..... 8.0 A  
Dimensions (chassis) ..... 178 (W) × 50 (H) × 157 (D) mm  
(front face) ..... 188 (W) × 58 (H) × 16 (D) mm  
Weight ..... 1.7 kg

#### Amplifier

Maximum power output ..... 35 W × 4 (EIAJ)  
Continuous power output ..... 22 W × 4 (DIN45324, +B = 14.4 V)  
Load impedance ..... 4 Ω (4 — 8 Ω allowable)  
Preout output level/output impedance ..... 500 mV/1 kΩ  
Tone controls (bass) ..... ±12 dB (100 Hz)  
(treble) ..... ±12 dB (10 kHz)  
Loudness contour ..... +10 dB (100 Hz), +7 dB (10 kHz)  
(Volume: -30 dB)

#### Subwoofer

Crossover frequency ..... 50 Hz/ 80 Hz/ 125 Hz  
Crossover slope ..... -12 dB/oct

#### CD player

System ..... Compact disc audio system  
Usable discs ..... Compact disc  
Signal format ..... Sampling frequency: 44.1 kHz  
Number of quantization bits: 16; linear  
Frequency characteristics ..... 5 — 20,000 Hz (±1 dB)  
Signal-to-noise ratio ..... 94 dB (1 kHz) (IEC-A network)  
Dynamic range ..... 90 dB (1 kHz)  
Number of channels ..... 2 (stereo)

#### FM tuner

Frequency range ..... 87.5 — 108 MHz  
Usable sensitivity ..... DYNAS ON: 7 dBf  
(0.6 μV/75 Ω, mono, S/N: 30 dB)  
50 dB quieting sensitivity ..... DYNAS ON: 13 dBf  
(1.2 μV/75 Ω, mono)

Signal-to-noise ratio ..... DYNAS ON: 67 dB (IEC-A network)  
Distortion ..... 0.3 % (at 65 dBf, 1 kHz, stereo)  
Frequency response ..... 25 — 15,000 Hz (±3 dB)  
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)

#### MW tuner

Frequency range ..... 531 — 1,602 kHz  
Usable sensitivity ..... 16 μV (25 dB) (S/N: 20 dB)  
Selectivity ..... 50 dB (±9 kHz)

#### LW tuner

Frequency range ..... 153 — 281 kHz  
Usable sensitivity ..... 30 μV (30 dB) (S/N: 20 dB)  
Selectivity ..... 50 dB (±9 kHz)

#### Note:

Specifications and the design are subject to possible modification without notice due to improvements.



## 2. OPERATION AND CONNECTION

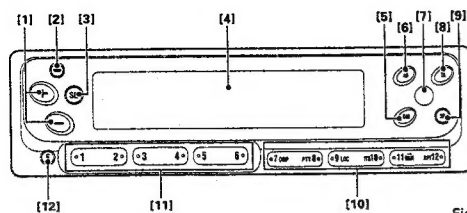


Fig. 1

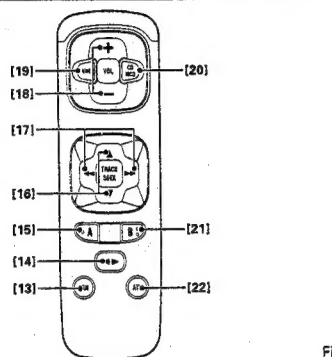


Fig. 2

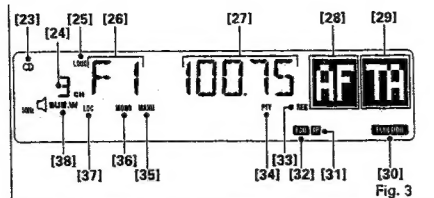


Fig. 3

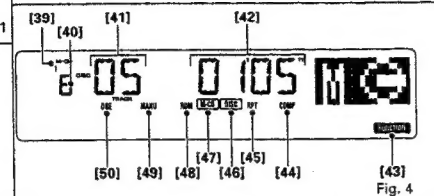


Fig. 4

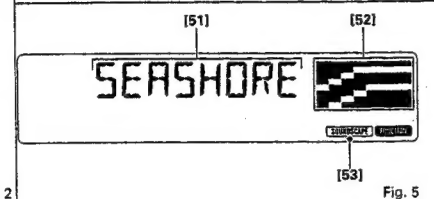


Fig. 5

### Making Audio Adjustments

#### Parts Identification

Fig. 1

[1] Volume

Fig. 2

[15] Shift/SLA  
[16], [17] Audio Adjustment  
[18] Volume  
[22] Attenuator

Fig. 3

[25] Loudness  
[38] Sub-woofer

#### Mode Switching

Each time button [15] is pressed, the mode changes in the following sequence:

Volume adjustment (VOL) — Balance adjustment (FAD/BAL) — Automatic volume adjustment (ASL) — Sub-woofer (SUB.W) — Loudness adjustment (LOUD)

- When a fader, balance, or bass/treble adjustment is made, the adjustment stops temporarily at the center position. The display changes back to its previous state approximately 8 seconds after an adjustment is made.

#### When the Unit is Used in Combination with the "DEQ-P800" Hideaway DSP

When the unit is used in combination with the "DEQ-P800" Hideaway DSP, the mode changes in the following sequence each time button [15] is pressed:

Volume adjustment (VOL) — Balance adjustment (FAD/BAL) — Automatic volume adjustment (ASL) — Sub-woofer (SUB.W) — Loudness adjustment (LOUD)

- The mode will not be switched to Tone adjustment.
- Please refer to the Hideaway DSP Owner's Manual for the use of automatic volume adjustment (ASL).

#### Adjusting the Volume

The volume is increased by pressing the (+) side of button [1] or [18], and decreased by pressing the (-) side. (Display shows "VOL 00" ~ "VOL 30".)

- When driving, the volume should be adjusted to a level that allows sounds outside the vehicle to be heard.

#### Adjusting the Balance

Press button [15] to select the balance adjustment mode ("FAD" lights). Fader adjustments are made using the ▲ or ▼ side of button [16]. To adjust the balance, press either the ◀ or ▶ side of button [17] to display "BAL", then make the adjustment with the ◀ or ▶ side of the button.

#### Fader

The balance is gradually changed to front speaker sound only, by pressing the ▲ side of button [16], and to rear speaker sound only, by pressing the ▼ side. (Display shows "FAD F9" ~ "FAD R9".)

- When a two-speaker system is used, you should set "FAD 0".

#### Balance

The balance is gradually changed to left speaker sound only, by pressing the ◀ side of button [17], and to right speaker sound only, by pressing the ▶ side. (Display shows "BAL L9" ~ "BAL R9".)

#### Adjusting the Tone

Press button [15] to select the tone adjustment mode ("BAS" lights). Use the ◀ or ▶ side of button [17] to select the tone you want to adjust. Pressing the ◀ side selects BAS, and pressing the ▶ side selects TRE.

#### Bass Adjustment

Select the bass adjustment mode. Bass intensity is gradually increased by pressing the ▲ side of button [16], and decreased by pressing the ▼ side. (Display shows "BAS -6" ~ "BAS +6".)

#### Treble Adjustment

Select the treble adjustment mode. Treble intensity is gradually increased by pressing the ▲ side of button [16], and decreased by pressing the ▼ side. (Display shows "TRE -6" ~ "TRE +6".)

#### Sub-woofer

When a sub-woofer is used with the unit, the sub-woofer setting should first be switched to ON.

#### Using the Sub-woofer Function

1. Press button [15] repeatedly to change to the sub-woofer mode ("80Hz 0" is displayed).
2. When button [15] is pressed for 2 seconds or more, "SUB.W" [38] lights, and the sub-woofer setting changes to ON.
3. To cancel the sub-woofer function, press button [15] repeatedly to change to the sub-woofer mode, and press button [15] for 2 seconds or more while the sub-woofer display is shown.

#### Adjusting the Frequency and Output Level

1. Press button [15] repeatedly to change to the sub-woofer mode.
2. Adjust the frequency and output level adjustment while the sub-woofer display is shown. Press the ◀ or ▶ side of button [17] to adjust the frequency, and press the ▲ or ▼ side of button [16] to adjust the output level. The frequency can be set to 50 Hz, 80 Hz, or 125 Hz, and an output level can be selected in the range from -6 to +6.

#### Adjusting the Loudness

The loudness function compensates for deficiencies in the low and high sound ranges when listening to the unit at low volume.

1. Press button [15] to select the loudness adjustment mode (display shows "LOUD OFF").
2. Pressing button [15] for 2 seconds or more turns the loudness function ON ("LOUD" [25] lights). To cancel the loudness function, press button [15] again for 2 seconds or more ("LOUD" [25] goes off).

#### Using the Source Level Adjuster

This function compensates for the difference in volume when the source is switched.

- Compensation is performed on the basis of the FM volume, and therefore the FM volume cannot be adjusted.
- 1. Check the FM volume.
- 2. Switch to the source you want to adjust, and check the difference in volume between that source and FM.
- 3. Press button [15] for 2 seconds or more to change to the SLA mode. The current level, "V 0", is displayed.
- The SLA mode is canceled after 8 seconds.
- 4. Adjust the volume level by pressing the ▲ or ▼ side of button [16]. (Display shows "V -4" ~ "V +4".)

#### Attenuator

Pressing button [22] reduces the volume by approximately 90% ("ATT" flashes). The original volume is restored by pressing the button once again.

### Using the Tuner

#### Parts Identification

Fig. 1

[3] Source Switching

[6] AF

[8] TA

[10], [11] Preset

[10], [11] Functions

- ⑦ PTY Display Switching
- ⑧ PTY Seek/PTY Setting
- ⑨ Local Mode/Local Sensitivity
- ⑩ DYNAS
- ⑪ Preset Scan/BSM
- ⑫ FM Monaural/Seek, Manual Switching

[12] Function Switching

Fig. 2

[14] Band

[16] Preset Tuning

[17] Tuning

[19] Source Switching

Fig. 3

[23] FM Stereo

[24] Preset Number

[26] Band

[27] Frequency

[28] AF

[29] TA

[30] Function

[31] TP

[32] EON

[33] REG

[34] PTY

[35] Manual

[36] FM Monaural

[37] Local Mode

#### Function Switching

Button [10] has two functions. It switches FM monaural, BSM, etc. ON and OFF, and it also serves as the preset button for the FM1 band. Press button [12] to switch the function as desired.

#### Functions ON ([30] lit)

To use the buttons in bank [10] with functions such as FM monaural and BSM, set functions ON.

#### Functions OFF ([30] off)

Leave the functions OFF when using button [10] as the preset button for the FM1 band.

#### Listening to the Radio

##### Electronic Tuner

Frequency allocation differs depending upon the area. This unit has been designed in accordance with the frequency allocations for Western Europe, Asia, the Middle and Near East, Africa, Australia and Oceania. Use in other areas may result in improper reception of AM. The RDS function does not work in regions with no RDS broadcast services.

1. Press button [3] or [19] to switch the source to the tuner.
2. Press button [14] to select the band. The band changes each time the button is pressed as follows:  
FM1 — FM2 — MW/LW
- MW and LW together comprise one band.
3. Select a station using manual tuning or seek tuning.

- 3-1. Pressing button ⑩ of bank [10] for 2 seconds or more switches between seek and manual tuning alternately. When manual tuning is selected, "MANU" [35] lights.

- 3-2. Tune by pressing the ◀ or ▶ side of button [17]. (When a stereo station is tuned in, "STEREO" [23] lights.)

- When the function is OFF, switching between seek and manual tuning can not be done in FM1 stations. Press button [12] to turn the function ON.

#### Seek Tuning

When the button is pressed, a station with a signal of a given strength or greater is tuned in automatically.

#### Manual Tuning

When the button is pressed, the frequency changes step by step.

#### Preset Memory

The radio stations can be stored in memory under buttons ① to ⑩ of [11].

- FM1 bands can be stored in the memory of button [10] ① to ⑩. Leave the function OFF when storing memory into button [10].

1. Tune in to the station to be stored in memory.
2. Store the station in memory by pressing one of the buttons ① to ⑩ for at least 2 seconds. When the [24] number stops blinking and there is a beep, the station will be stored in memory under the button pressed.
- Up to 18 FM stations (12 stations on FM1 and 6 stations on FM2) and 6 MW/LW stations can be stored in memory.

## Preset Tuning

The radio stations stored in memory can be recalled by pressing the respective button ① to ⑥ of [11]. The station stored under button ① will be recalled. (The number of the button pressed will be displayed at [24].)

- The FM1 band can recall broadcast stations stored in the memory of button [10]. Set functions OFF before recalling a station memorized in one of the buttons in bank [10].
- When using the remote controller, a station memorized in a button in bank [10] or [11] can be recalled by pressing the ▲ or ▼ side of button [16].

### Note:

When using a button in bank [10] in the operations in the following sections, turn functions ON first.

## BSM (Best Stations Memory)

The radio stations having a strong signal can be tuned automatically and stored in memory under buttons ① to ⑥ of [11]. Press ① of button [10] for at least 2 seconds. (The "BSM" will blink.) After "BSM" stops blinking, the stations will be stored in memory under buttons ① to ⑥ of [11].

- The FM1 band can also be stored in the memory of button [10].
- BSM can be canceled mid-operation by pressing ① of button [10].

## Using the RDS Function

### What is RDS?

RDS (Radio Data System) according to a CENELEC EN50067 is a system for transmitting data signals from FM broadcast transmitter along with the normal sound program. These data signals, which are imperceptible to listeners, are intended to aid radio listeners in tuning their receivers to a desired station. RDS receivers can decode these data signals for display or control purposes.

RDS digital signal includes various data, such as PI, PS, AF, TP, TA, EON and PTY.

- PI ..... Program Identification Code
- PS ..... Program Service Name
- AF ..... List of Alternative Frequencies
- TP ..... Traffic Program Identification Code (Similar to SK signal of AM system)
- TA ..... Traffic Announcement Code (Similar to DK signal of AM system)
- EON ..... Enhanced Other Network Information Code. (In some countries, EON is not offered by broadcasters.)
- PTY ..... Program type ID code

### RDS Function of this Unit

This unit has the following functions for making use of RDS data.

- PS, the name of the currently listened station is displayed.
- AF (Alternative Frequency) function. This enables the receiver to automatically retune to more suitable frequencies transmitting the same program.

- The stations will be stored under buttons ① to ⑥ in the order of their signal strength. The strongest station will be stored under button ①, followed by stations with lower signal strengths.
- If there are fewer than 6 stations whose signal is strong, there will be spare memory.
- It will take almost 30 seconds for BSM to be completed.

## Preset Scan Tuning

This recalls in sequence all the stations stored in memory under the buttons [11] for 8 seconds each. Press ① of button [10]. (The [24] number will blink.) To cancel, press the button again. After the desired station is tuned, cancel the preset scan tuning. The station will then continue to be received.

- Stations stored in memory under the buttons [11] but whose signal is weak will not be recalled.
- The FM1 band can recall broadcasting stations stored in the memory of button [10].

## Local Seek Tuning

When the local mode is selected, seek tuning sensitivity changes and only stations with a stronger signal than in the case of normal seek tuning are tuned to. The local mode sensitivity can also be adjusted.

### To Select Local Mode

Press button ① of bank [10]. ("LOC" [37] lights.) To cancel local mode, press the button once again.

### Adjusting Local Seek Sensitivity

The sensitivity can be adjusted in 4 steps for FM and 2 steps for MW/LW.

- LOC-4 tunes in only the stations with the strongest signals, and LOC-3, LOC-2, and LOC-1 tune in stations with progressively weaker signals.
- Select the local seek sensitivity adjustment mode. Press button ① of bank [10] for 2 seconds or more. (The current sensitivity is displayed.)
- The local seek sensitivity adjustment mode is canceled after approximately 5 seconds.
- Press the ◀ or ▶ side of button [17] to adjust the sensitivity.

## FM Monaural Reception

If the noise in a stereo broadcast is distracting, you can reduce the noise by switching to monaural reception. Press button ① of bank [10]. ("MONO" [36] lights.) To cancel monaural reception, press the button once again.

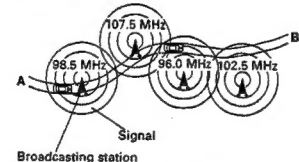
## DYNAS Function

If the FM broadcast being received is not clear because of interference from another station, interference from other stations can be prevented by turning on the DYNAS function.

Pressing button ① of bank [10] for 2 seconds or more switches the DYNAS function ON and OFF alternately.

### Example:

If a motorist travels as shown below, from point A to point B, (and has selected AF function) then the receiver will automatically retune to a more suitable frequency transmitting the same program. This is shown by the automatic retuning from 98.5 MHz to 107.5 MHz to 96.0 MHz to 102.5 MHz.



- To activate the Alternative Frequency Function, press button [6], "AF" [28] will appear on the display. Once tuned to a RDS station, as long as you drive within an area served by the same network, the receiver will automatically retune to a more suitable station transmitting the same program, by utilizing the data in the AF list.
- "PI SEEK" will appear on the display, if the AF function has been selected, and a suitable AF station cannot be found. In this case, the receiver will mute the radio sound and search the frequency band, in order to find a station with the same PI code. The receiver will return to the original frequency if the same or related PI code cannot be found.
- The AF function will not work in the following cases:

- when the receiver is tuned to a non-RDS station. (local station)
  - when the RDS station does not transmit any AF list data.
  - when the receiver cannot receive the AF list due to disturbances.
- When the receiver is unable to find a PI code, the box of "AF" [28] will start rotating. Thus indicating that the AF function cannot be performed.

### Preset Recall

When recalling preset stations in the AF mode, the tuner will be tuned to the stored frequency and the AF function will be operative i.e. when the signal of the recalled station is weak or has a different PI, the radio will look into the AF list and if necessary start a PI-seek in order to find a station with the same or related PI code. When the tuner is performing a PI seek "PI SEEK" is shown on the display.

If the PI seek is successful, the tuner will be tuned to the new frequency that transmits the same program service (i.e. with the same PI code) and the display will show the stored PS. If the PI seek is not successful, the tuner will return to the stored frequency. If a new station (with a different PI code) would be received on this frequency, this station will become audible. The PS of the received station is shown on the display. (In this case, the preset number disappears, indicating that the recalled station and the station being received are different.)

- When recalling preset stations in the AF=OFF mode, the tuner will be tuned to the stored frequency and the display will

- PTY display contents are of the following 16 types: NO PTY, AFFAIRS, CLASSICS, CULTURE, DRAMA, EASY MUS, EDUCATE, INFO, LCLASS, NEWS, OTH MUS, POP MUS, ROCK MUS, SCIENCE, SPORT, VARIED
- Some stations may broadcast program contents that differ from the PTY code.
- "NO PTY" is displayed when no PTY code can be picked up from the received station.

### Setting the program type

- Press and hold down [10] the ① button for at least 2 seconds to switch to the PTY setting mode. ("PTY" [34] will light and the program types will be shown on the display for about 5 seconds.)
- While the program types are shown on the display, press the ◀ side or ▶ side of the [17] button to select the type that you want.

### Note:

In the CURRENT mode, if the currently received station is an RDS station and the PTY code has already been picked up, then the program type is automatically set to match that station's PTY code.

### PTY Seek

For automatic reception of RDS stations having the PTY code that you have selected beforehand. Pressing [10] the ① button causes your selected program type to flash on the display and PTY SEEK to begin ("PTY" [34] flashes).

- PTY seek automatically receives RDS stations having a different PI code with the set PTY code. However, it will return to the previous station if "NO PTY" is displayed.
- If PTY SEEK is unsuccessful, "NO PTY" will be shown on the display for about 2

seconds, after which it will return to the station received before PTY SEEK began.

## Listening to Regional Stations

In some countries a particular program service may "opt out" during a certain part of the day in several regional variants at particular locations. Since these regional variants are broadcasting a different program they temporarily have a PI and a PS that is different from the main program service. The PI's are mostly "generically linked". The AF list may either be common for all regional variants or each regional variant may have its own AF list.

In other countries there may be regional stations which are not an "opt out" of a particular main program service but which have an independent existence. These regional stations all have a different PS. Their PI's may be "generically linked" and their AF lists may carry frequencies which are alternatives for that regional station only.

### 1)Regional OFF Mode

When AF is ON and REG is OFF, the receiver will switch automatically to regional stations that are likely to be broadcasting the same program but which do not necessarily match the region code. If this results in repeated reception of undesired different program contents, switch to the REG ON mode.

- Non TP RDS stations may be received during PTY seek even if TA (Traffic Information Standby) is on. In this case an alarm sounds after about 30 seconds to tell you that it is not a TP station.

### PTY Alarm

Among the PTY codes there is also one for emergency announcements warning of natural disasters, nuclear reactor accidents, etc. In case of such disasters, RDS stations may output this emergency PTY alarm code. When this unit is ON (not during MW/LW reception), and this PTY code is picked up, ALARM will light on the display, volume will be set to TA interrupt level, and that RDS station will be received. When the RDS station stops putting out the emergency PTY alarm code, the unit will return to the previous source. To return to the previous source during reception of the emergency program, press button [8].

## Traffic Information Reception

### TP and EON-TP function

When a traffic information station (TP station) is selected, "TP" [31] lights on the display, thus indicating traffic report can be received through this station. The "EON" [32] and "TP" [31] indicator will light on the display when a selected station (this network) is broadcasting EON information which cross-references at least one program service which carries traffic information, thus indicating traffic report can be received through another program service by using the EON function of this unit.

In both cases, by briefly pressing button [8], traffic report waiting status will be entered.

### 2)Regional ON Mode

When AF is ON and REG is ON, the receiver will switch automatically only to regional stations that precisely match the region code and are therefore definitely broadcasting the same program.

### REG ON/OFF

To put the radio in the REG ON mode, press button [6] for more than 2 seconds. "REG" [33] will appear on the display.

To cancel the REG ON mode i.e. to put the radio back in the default REG OFF mode, press button [6] again for more than 2 seconds. "REG" [33] will disappear from the display.

## PTY Function

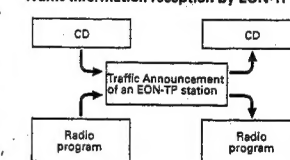
This unit's PTY function uses the PTY codes put out by the RDS station to provide three functions: PTY Display, PTY Seek, and PTY Alarm.

- PTY Display is a function that shows the program type of a received station if the broadcast station is an RDS station and is putting out a PTY code.
- PTY Seek is a function that receives RDS stations broadcasting the program type that the user has selected beforehand.
- PTY Alarm is a function that receives an RDS station after picking up an emergency PTY alarm code put out by that station when a natural disaster or nuclear accident, etc., has occurred.

### PTY indication switching

When an RDS station is received, the network/station name display appears. At this point, if the unit has picked up the PTY code, press [10] the ① button, and PTY (program type) will be displayed for 8 seconds.

### Traffic information reception by EON-TP



### Traffic Announcement Volume Adjustment

- The volume level for traffic information broadcasting is temporarily stored in memory.

### TP Alarm Function

- In TA mode, about 30 seconds after "TP" [31] disappears from the display, which occurs if the signal from the TP becomes weak, an alarm sounds for 10 seconds to tell you to tune to another TP station.

### TA Reception during CD Play

- If the radio is already set to the FM band and tuned to a TP or EON-TP station, even when listening to the built-in CD player or the multi-CD player, when the button [8] is pushed ("TA" [29] is shown on the display), traffic report waiting will begin. When a traffic report begins, the system will switch from CD to the traffic report.



BSA Function

- While button [8] is on, ("TA" [29] is shown on the display) and AF is off, and you are listening to either the built-in CD player or multi-CD player, should the TP station become weak, the radio will start BSA (Best TP Station Auto Search) 10 seconds after "TP" [31] disappears from the display. The tuner will automatically tune to the strongest TP station in the area, and will stand by for a traffic bulletin. BSA does not work when the AF function is selected, so press button [6] to turn the AF function off.

TP Alarm Function

- In AF mode, about 30 seconds after "TP" [31] disappears from the display, which occurs if the signal from the TP becomes weak, an alarm sounds for 10 seconds to tell you to tune to another TP station.

Tuning Functions on each RDS mode

| Tuning Mode                              | AF Mode      | TA Mode & AF plus TA Mode |
|--|--------------|---------------------------|
| Seek Tuning will stop to find,           | RDS Stations | TP or EON-TP Station      |
| BSM will select and memorize in presets, | RDS Stations | TP Stations               |

Non-RDS stations such as those using the Swedish MBS system may be tuned in as RDS stations, but this is due to both systems using the same 57 kHz subcarrier frequency and is not a malfunction of the unit.

Tuning Steps

- The tuning step is normally 50 kHz during seek tuning on an FM band. However this tuning step changes to 100 kHz when the set is in AF or TP mode. In some countries it may be desired to set a tuning step of 50 kHz in AF mode by holding down button ① of Bank [11] while turning the ignition key from OFF to ON.
- During manual tuning, the step does not change; it remains fixed at 50 kHz.
  - The tuning step will return to 100 kHz if the batteries supply is temporarily disconnected or the clear button is pressed.
  - In AF mode, only those stations being broadcast at 100 kHz steps are subject to AF reception (CENELEC STANDARD).

Playing a CD

A separately available multi-CD player (such as the CDX-P1210) can be controlled as well as the built-in CD player.

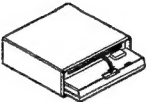
Precautions When Using the Multi-CD Control

- If the IP-BUS extension adapter is used, up to 4 multi-CD players can be connected. When two or more CD players are connected, their priorities must be specified for the Multi-CD players. See the Multi-CD players instructions and set the address switches correctly.

Using the Built-in CD Player

Note:

- Check that no disc is loaded, then insert a disc.
  - Do not insert two discs together, as this will damage the unit.
  - This unit can play an 8 cm CD without an adapter. Do not use an adapter when inserting an 8 cm CD, as the adapter may become detached and prevent the disc from being removed.
- Press button [2] to open the front panel [4].

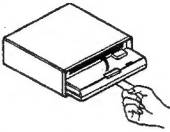


- When a disc is inserted in the disc slot, the power is turned on and CD playback starts.

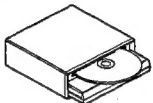
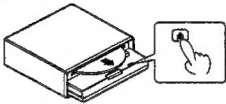


Insert the disc with the recorded surface (iridescent surface) down.

- Close the front panel and adjust the volume and tone. (The track number [41] and playing time [42] are shown on the display.)



- To stop playback, press button [3] or [20] to set the source to OFF.
- To eject the disc, first press button [2] to open the front panel [4], then press the Eject button.



Using the Multi-CD Player

- Press button [3] or [20] to switch the source to the multi-CD player. (The multi-CD player number [39], disc number [40], track number [41], and playback time [42] are displayed.)
- When you turn the power on or change the disc to be played, the multi-CD player may perform a preparatory operation (verifying there is a disc, reading disc information, etc.). "READY" is displayed during this time.

- If a disc is already loaded, CD playback can be turned ON/OFF by pressing button [3] or [20]. When CD playback is turned ON again, it will begin near the track at which playback was stopped.
- If a disc cannot be fully inserted, or playback does not start after a disc has been inserted, there is probably something wrong with the disc. In this case, check the disc for abnormalities.

Parts Identification

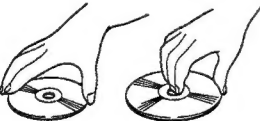
- Fig. 1**  
[3] Source Switching  
[10], [11] Disc Number Search  
[10] Functions
- ① Display Switching/Disc Title
  - ② Pause/Random Playback
  - ③ Title List/ITS Clear
  - ④ ITS/ITS Playback
  - ⑤ Scan Playback/Digital Compression
  - ⑥ Playback Mode Switching
- Track Number Search—  
Fast Forward, Reverse Switching
- [12] Function Switching
- Fig. 2**  
[14] Multi-CD Player Switching  
[16] Disc Number Search  
[17] Track Number Search/  
Fast Forward, Reverse  
[20] Source Switching
- Fig. 4**  
[39] Multi-CD Player Number  
[40] Disc Number  
[41] Track Number  
[42] Playback Time  
[43] Function  
[44] COMP  
[45] One Track Repeat  
[46] Disc Repeat  
[47] Magazine Repeat  
[48] Random  
[49] Fast Forward/Rewind  
[50] DBE

Discs

- Only use compact discs (optical digital audio discs) bearing the mark shown below.



- Do not use cracked, scratched, or warped discs.
- Do not touch the disc's playing side. Handle the disc as shown below.



- Do not affix any label on the disc.
- Do not apply any vinyl record spray, anti-static agent, benzene, paint thinner, or any other volatile chemicals.

- Do not play a dirty disc. Use a soft cloth to clean a dirty disc as shown below. Wipe the disc outward from the center.



- Do not place the disc in high temperatures and direct sunlight.
- Be sure to store the disc in its case.

CD Playing Environment

- Disc playback may be interrupted by sudden road shock.
- When the air temperature is low and the car heater is turned on, condensation on the disc and internal parts of the unit may prevent proper playback operation. If this happens, turn off the unit and wait one hour until the condensation is gone. Also, use a soft cloth to wipe off any condensation from the disc.

- If the multi-CD player is unable to operate normally, an error message will appear on the display (e.g. "ERROR-90"). In this case, refer to "Error Display" on page 13 to identify the nature of the error.
- To stop disc playback, press button [3] or [20] to switch the source OFF.
- When CD playback is started again, it will begin near the track at which playback was stopped.

Switching functions (multi-CD player's function)

- Button [10] has two functions. It switches ITS, random playback, etc. ON and OFF and it also serves as the disc number search. Press button [12] to switch the function as desired.
- If a 6-Disc Multi-CD player is connected, switching between functions ON and OFF cannot be performed even if button [12] is pressed.

Functions ON ([43] lit)

When using buttons in bank [10] with a function such as ITS or random playback, you should first turn functions ON.

Functions OFF ([43] off)

When using buttons in bank [10] to search the disc number, you should first turn functions OFF.

Switching the multi-CD player (multi-CD player's function)

A maximum of 4 multi-CD players can be connected to this unit. Press button [14] to choose the desired CD player. The number of the CD player is indicated in [39] on the display.

Disc number search (multi-CD player's function)

- Select the disc using buttons [10] and [11]. The disc number is indicated in [40] on the display.
- Leave the function OFF when selecting a disc using button [10].
  - When using the remote controller, the disc, set in the multi-CD player is switched each time the ▲ or ▼ side of button [16] is pressed.
  - It takes a few seconds for CD playback to begin after a button is pressed. This is the time taken to change the disc.

**Note:**  
Leave the function ON when using button [10] for the following operations.

Track Number Search

The track number search function lets you select a particular track on a disc. Check that "MANU" does not light in display [49]. If it does, turn it out by pressing button ⑥ of bank [10] for 2 seconds or more. The track number [41] is incremented by pressing the ► side of button [17], and decremented by pressing the ◀ side. Holding down the button will increment/decrement the number continuously.

Fast Forward/Reverse

- Press button ⑥ of bank [10] for 2 seconds or more. "MANU" [49] will light.
- Press the ► side of button [17] to fast-forward, or the ◀ side to reverse.
- Playback can be heard while fast-forwarding or reversing.

Pausing

The disc playback can be stopped temporarily by pressing ⑥ of button [10]. (The "PAUSE" will be displayed.) To cancel the pause, press the button again.

**Repeat**

You can select one of the play modes (repeat modes) listed below.

| Play mode<br>(repeat mode) | Operation  |
|----------------------------|--|
| One-Track Repeat           | Play the current track repeatedly.<br>• When you perform track number search or fast forward or reverse, the mode changes to disc repeat mode.<br>• Switching the multi-CD player being played or the disc switches to magazine repeat mode. |
| Disc Repeat                | Play the same disc repeatedly.<br>• Switching the multi-CD player being played or the disc switches to magazine repeat mode.   |
| Magazine Repeat            | Play all discs loaded in the magazine in the multi-CD player repeatedly. All discs in the magazine are played repeatedly from the first disc.  |
| ALL Repeat*                | The mode changes to this mode when 2 or more multi-play CD players are connected. Multi-CD players 1 to 4 are played.  |

\* When 2 or more multi-CD players are connected.

**(Built-in CD player's function)**

Each press of button  $\text{REPEAT}$  in bank [10] causes the mode to change as follows:

One-Track Repeat ("RPT" [45] appears.) → Disc Repeat (Normal playback for built-in CD player) ("RPT" [45] will disappear.)

**(Multi-CD player's function)**

Each press of button  $\text{REPEAT}$  in bank [10] causes the mode to change as follows:

One-Track Repeat ("RPT" [45] appears.) → Disc Repeat ("DISC" [46] appears.) → Magazine Repeat ("M-CD" [47] appears.) → ALL Repeat ([45] [46] [47] will disappear.)

**Random Play**

The microcomputer of the CD player selects plays tracks on discs in random order. Random play is performed according to the current play mode (repeat mode) as follows:

| Play mode<br>(repeat mode) | Tracks to be played at random  |
|----------------------------|--|
| One-Track Repeat           | All tracks on the disc being played.<br>• The play mode changes to disc repeat mode. |
| Disc Repeat                | All tracks on the disc being played.   |
| Magazine Repeat            | All tracks on the discs in the magazine being played.                                |
| ALL Repeat*                | All tracks on all discs in multi-CD players 1 to 4.                                  |

\* When 2 or more multi-CD players are connected.

1. Select the desired random play mode (repeat mode).

2. Hold down button  $\text{REPEAT}$  in bank [10] for more than 2 seconds. ("RDM" appears on the display [48].) To cancel random play, hold down button  $\text{REPEAT}$  in bank [10] for more than 2 seconds again. ("RDM" disappears.)

• Since selections are played in random order, the same selection may be played twice in succession.

**Using Scan Play**

The first parts of each track are played in succession for about 10 seconds. This function is useful to search for the track or disc you want to listen to. Scan is performed according to the current play mode (repeat mode) as follows:

| Play mode<br>(repeat mode) | Tracks to be scanned and played  |
|----------------------------|--|
| One-Track Repeat           | All tracks on the disc being played.<br>• The play mode changes to disc repeat mode. |
| Disc Repeat                | All tracks on the disc being played.   |
| Magazine Repeat            | The first tracks of all the discs in the magazine being played.                      |
| ALL Repeat*                | First tracks of all discs loaded in multi-CD players 1 to 4.                         |

\* When 2 or more multi-CD players are connected.

1. Select the desired scan play mode (repeat mode).

2. Press button  $\text{SCAN}$  in bank [10]. ("SCAN" appears on the display.) The first parts of all tracks are played in succession for about 10 seconds.

3. When you hear the track you want, press button  $\text{SCAN}$  in bank [10] again to cancel Scan. ("SCAN" disappears.) The track (disc) being played is when played to the end.

• The previous function automatically resumes when a piece of music with which Scan began returns.

**ITS (Instant Track Selection)**

(multi-CD player's function)

This function lets you program and play the tracks you want. You can listen to just your favorite tracks.

• The ITS function only operates when the multi-CD player is in playback mode.  
• The ADPS function\* of the multi-CD player lets you program up to 100 discs. (Up to 100 discs can be programmed including disc title inputs.)

\* ADPS: Automatic Disc Program Selection  
• Up to 99 tracks can be programmed for a single disc.

• From the 100th disc, the data for a new disc will overwrite the data of the oldest disc, that has not been played back (information has not been updated).

• Tracks are programmed for each disc. Programmed tracks are not erased after the disc is changed.

**Programming**

1. Play the track you want to program.  
2. Press button  $\text{PROGRAM}$  in bank [10] to program the track. ("ITS" appears on the display for 3 seconds.)

• Program tracks while ITS play is not in progress. It is possible during scan play or random play.

**ITS Play**

(multi-CD player's function)

Tracks are played according to ITS play mode (repeat mode) as follows:

| Play mode<br>(repeat mode) | Tracks to be played by ITS   |
|----------------------------|--|
| One-Track Repeat           | Programmed tracks on the disc being played.<br>• The play mode changes to disc repeat mode.  |
| Disc Repeat                | Programmed tracks on the disc being played.  |
| Magazine Repeat            | Programmed tracks on the discs in the magazine being played.<br>• If the disc being played contains no programmed tracks, the next disc containing programmed tracks is played.                                      |
| ALL Repeat*                | Programmed tracks on all discs in all magazines in multi-CD players 1 to 4.<br>• If the disc (multi-CD) being played contains no programmed tracks, the next disc (multi-CD) containing programmed tracks is played. |

\* When 2 or more multi-CD players are connected.

1. Select the desired ITS play mode (repeat mode).
2. Hold down button **Ⓢ** in bank [10] for more than 2 seconds. ("ITS.P" appears on the display.) To cancel ITS play, hold down button **Ⓢ** in bank [10] for more than 2 seconds again. ("ITS.P" disappears.)
- If you try to play a track that is not programmed within the play range of the selected repeat mode by ITS, "EMPTY" will appear on the display for about 3 seconds, indicating that ITS play is not possible.
- You can perform scan play or random play during ITS play. In this case, scan play or random play applies to all the tracks stored in memory. (If the play mode is the magazine repeat mode or all repeat mode, scan play applies to all the tracks of the discs in the magazine stored in memory.)
- During ITS play, multi-CD players containing discs with programmed tracks are switched, and disc and track number search is performed on programmed tracks. So, you cannot switch to any tracks or discs that are not stored in memory.
- When you turn the power on or change the disc to be played, the multi-CD player may perform a preparatory operation (verifying there is a disc, reading disc information, etc.). "READY" is displayed during this time.

#### Erasing the ITS Program

You can erase one or all selections of the program for the disc being played by ITS.

##### To erase a single selection:

1. Start ITS play.
2. Play the track you wish to erase by using disc number search or track number search.
3. Hold down button **Ⓢ** in bank [10] for more than 2 seconds.
- If programmed tracks are completely erased, "EMPTY" appears on the display and the ITS play will be canceled.

##### To erase the disc program:

1. Start normal play.
2. Play the disc you wish to erase by using disc number search.
3. Hold down button **Ⓢ** in bank [10] for more than 2 seconds to erase the program. ("CLEAR" appears on the display for about 3 seconds.)

#### Disc Title Input

The title of the disc loaded in this unit and the title of the disc in the Multi-CD player can be stored to the memory. The title stored for the disc can be displayed.

- This function is valid only when the Multi-CD player is connected to this unit.
- The ADPS function\* of the multi-CD player lets you enter titles for up to 100 discs. (Up to 100 discs, including ITS, can be programmed.)
- ADPS: Automatic Disc Program Selection
- A disc title can consist of up to 8 characters for a single disc.
- From the 100th disc, the data for a new disc will overwrite the data of the oldest disc, that has not been played back (information has not been updated).
- One title is stored for each disc. The title stored for a disc is not erased after the disc is changed.

#### CD sound quality adjustment function

A COMP (compression) function and D.B.E. (Dynamic Bass Emphasis) function can be used with this unit. The COMP and D.B.E. functions can also be used when a multi-CD player that has these functions is connected. (If you connect a Multi-CD player that does not feature these functions, even if you try to switch to these functions, "NO COMP" is displayed, indicating that switching is not possible.)

##### COMP (Compression) function

This function suppresses loud sounds while boosting quiet sounds to reduce the difference between the two. Use this function if there is distortion when you raise the volume.

When the COMP function is ON, "COMP" [44] lights in the display.

##### D.B.E. (Dynamic Bass Emphasis) function

When listening in a car, bass sound may be insufficient. This function boosts bass. When the D.B.E. function is ON, "DBE" [50] lights in the display.

##### COMP and D.B.E. switching

You can switch between two COMP and D.B.E. levels. Level switching of both functions at the same time is not possible.

1. Press button **Ⓢ** in Bank [10] for more than 2 seconds to select the switching mode.
2. Each time you press button **Ⓢ** in Bank [10], the mode changes as follows:  
COMP OFF — COMP 1 — COMP 2 — COMP OFF — DBE 1 — DBE 2 — COMP OFF
- With both COMP and D.B.E., the second mode is more effective.

#### Entering Titles

1. Select the disc for which you want to enter a title.
2. Hold down button **Ⓢ** in bank [10] for more than 2 seconds to select title input mode.
3. Press the **◀** or **▶** side of button [17] to select the input position. The input position moves continuously when you hold down either side of the button.



4. Select characters using the **▲** or **▼** side of button [16]. When you hold down either side of the button, the character changes continuously. Each press of the **▲** side changes the character from "A — B — C...", while each press of the **▼** side changes the character from "C — B — A". To enter a space, select the space sign ( ).
5. Enter all characters by repeating steps 3 and 4.
6. Press button **Ⓢ** in bank [10] to store them in memory.  
The title will appear on the display.

#### Display Switching

Pressing button **Ⓢ** of bank [10] switches between the elapsed playback time display and the disc title display alternately. Press button [14] during title indication to make the track display and playback time display appear for about 8 seconds.

- Nothing is displayed for discs having no titles.

##### Disc Title List (multi-CD player's function)

You can list all discs loaded in the magazine being played. This function is convenient for checking discs in the magazine being played.

The disc title list function only works when the multi-CD player is in playback mode. Each press of button **Ⓢ** in bank [10] displays the titles of the discs in magazine being played in ascending order of disc number. The disc title list mode is displayed for about 8 seconds, then the normal operation display returns.

- Nothing is displayed for discs having no titles.
- Trays with no discs are skipped.

##### Select the disc to be played from the disc list display (multi-CD player's function)

1. Press button **Ⓢ** in bank [10] to display the disc title.
2. When the title of the disc you want to listen to is displayed, press button **Ⓢ** in bank [10]. That disc is played.

#### Error Display

If there is a problem with CD playback, an error code will be displayed.

(Ex.: "ERROR-10")

If an error is displayed, refer to the table below to identify the problem. If the error is displayed even after corrective action is taken, contact your dealer or the nearest authorized PIONEER Service Station.

##### D: Display

##### C: Cause

##### T: Treatment

D: ERROR-11, 12, 14, 17, 30

C: The disc is dirty.

T: Clean the disc.

D: ERROR-11, 12, 17, 30

C: The disc is scratched.

T: Replace the disc.

D: ERROR-11, 14, 17

C: The disc is inserted with the label side down.

T: Insert the disc with the label side up.

D: ERROR-14

C: An unrecorded CD-R is being used.

T: Check the disc.

D: ERROR-90

C: An empty magazine is in the multi-CD player.

T: Insert discs into the magazine.

D: ERROR-10, 11, 12, 14, 17, 30, A0

C: Electrical or mechanical fault.

T: Turn off the car's ignition and turn it back on again. Or change the source to another one and then change it back to CD.

D: HEAT

C: The CD player's internal temperature is high.

T: Wait until the CD player's internal temperature goes down.

- If an error other than the above is displayed, refer to the multi-CD player's Owner's Manual.

## SOUND SCAPE

### Parts Identification

#### Fig. 1

- [11] Sub-source volume adjustment
- [9] SOUND SCAPE playback/setting mode switching

#### Fig. 2

- [16] Sub-source track selection
- [17] Main source track selection
- [18] Sub-source volume adjustment

#### Fig. 5

- [51] Sub-source sound effect designation (or track number)
- [52] SOUND SCAPE mode symbol
- [53] Lit : SOUND SCAPE playback  
Flashing: Setting mode

### The SOUND SCAPE Function

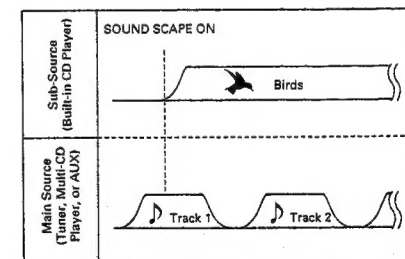
The SOUND SCAPE function plays the built-in CD player when you are listening to the tuner, a separately available multi-CD player, or the AUX source.

The two sources consist of the main source that plays in the usual way, and the sub-source that plays sound effects. The tuner, multi-CD player, or AUX source can be used as the main source, while only the built-in CD player can be used as the sub-source. The SOUND SCAPE function only works with these settings.

The SOUND SCAPE function has three modes, as described below.

#### MUSIC-MODE 1

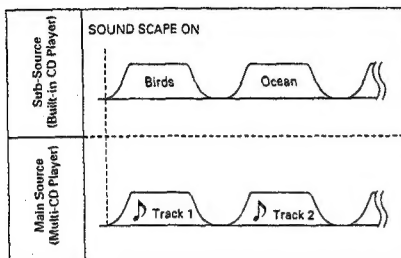
Sub-source sound is output while you are listening to the main source. The sub-source repeatedly plays a single track that has been set beforehand.





**MUSIC-MODE 2 (Program Mode)**

You can switch to MUSIC-MODE 2 only when you are listening to a multi-CD player as the main source. The sub-source sound is output during each main source track. You can set the sub-source sound

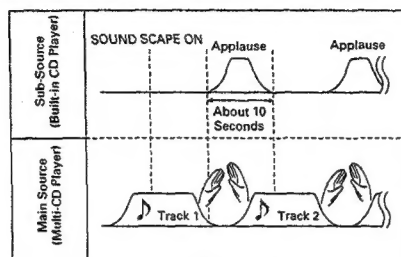


effect you want for each main source track.

- If you switch to MUSIC-MODE 2 during scan or ITS playback, the main source may not play from the start of a track.

**BLANK-MODE**

You can switch to BLANK-MODE only when you are listening to a multi-CD player as the main source. The sub-source sound is output for about ten seconds in the silent intervals between tracks. The sub-source sound is faded in when the main source sound falls to a certain level, and is later faded out.



- In BLANK-MODE, the sub-source sound may be output at the following times.
  - If there is an extremely quiet passage in a main source track.
  - If there are pauses in a main source track (such as in dialog).
  - When a track number search is in progress.
- BLANK-MODE may not function if there is only a short interval between tracks.

**Sub-Source CD Software**

Use of the following CD software is recommended for the sub-source (built-in CD player) in order to make the most effective use of the SOUND SCAPE function.

**Supplied CD Software**

The supplied CD software has been produced specially for use as the SOUND SCAPE sub-source.

**Commercially Available CD Software**

CD software containing the sound of waves and other sound effects can be used. When using the SOUND SCAPE function, we recommend using CD software containing music on the main source (multi-CD player).

**Using the SOUND SCAPE Function**

- Insert the sub-source CD software in the built-in CD player. (See "Using the Built-in CD Player" on page 9.)
- Check the built-in CD player sound, then follow the procedure below.
- Switch the source to the main source (tuner, multi-CD player, or AUX).
- Switch to the SOUND SCAPE mode you want to use. Pressing button [9] switches the SOUND SCAPE mode as shown below. With the multi-CD player as the main source:  
MUSIC-MODE 1 — MUSIC-MODE 2 — BLANK-MODE — SOUND SCAPE OFF  
With the tuner or AUX as the main source:  
MUSIC-MODE 1 — SOUND SCAPE OFF

| SOUND SCAPE mode                               | Display |             |
|--|---------|-------------|
|  | [52]    | [53]        |
| MUSIC-MODE 1                                   |         | SOUND SCAPE |
| MUSIC-MODE 2                                   |         | SOUND SCAPE |
| BLANK-MODE                                     |         | SOUND SCAPE |
| SOUND SCAPE OFF (e.g.: During Multi-CD Player) |         | Off         |

- SOUND SCAPE playback in the selected mode starts about 3 seconds after the mode switching operation. If the main source is the multi-CD player, display [52] stops flashing. The display [51] sound effect name and [52] SOUND SCAPE mode symbol indications change back to the original indications after a few seconds. (When commercially available CD software is loaded in the sub-source, the track number is shown in display [51].)
- If the main source is the multi-CD player, you can switch to a different SOUND SCAPE mode during SOUND SCAPE playback by first pressing button [9] to start display [52] flashing, then pressing button [9] again while display [52] is flashing.
- SOUND SCAPE is not canceled when the main source is switched. To cancel SOUND SCAPE, press button [9] until SOUND SCAPE is turned OFF.
- If the disc is removed from the built-in CD player during SOUND SCAPE playback, SOUND SCAPE playback is canceled but main source playback continues.
- If the source is switched to the built-in CD player during SOUND SCAPE playback, playback starts from the track that was being played as the sub-source.

**Setting Sub-Source Sound Effects**

Sub-source sound effects can be set for each mode.

- When SOUND SCAPE playback is performed after installing the unit or pressing the Clear button, the sound effect to be played on the sub-source is set to track 1.

- Press the ▲ or ▼ side of button [16] to choose the track to be played on the sub-source.
- Press button [9] for 2 seconds or more to memorize the selected track. You will hear a beep when track memorization is finished.
- You can make settings for tracks up to track 16 by repeating the operations in steps 4 to 6.
- Press button [9] to cancel the setting mode. ("SOUND SCAPE" [53] changes from flashing to constant illumination.)
- You can make settings for other discs by repeating the operations in steps 2 to 8.

**BLANK-MODE**

The sound effect to be played between main source (multi-CD player) tracks can be set.

- Perform the operations in steps 1 to 3 of "Using the SOUND SCAPE Function" and switch the SOUND SCAPE mode to BLANK-MODE.
- Press button [9] for 2 seconds or more to switch to the BLANK-MODE setting mode ("SOUND SCAPE" [53] flashes). The name of the currently set sound effect is shown in display [51].
- When commercially available CD software is loaded in the sub-source, the currently set track number is shown in display [51].
- Press the ▲ or ▼ side of button [16] to choose the track to be played on the sub-source.

**MUSIC-MODE 1**

The track (sound effect) to be played repeatedly on the sub-source is set.

- Perform the operations in steps 1 to 3 of "Using the SOUND SCAPE Function" and switch the SOUND SCAPE mode to MUSIC-MODE 1.
- Press button [9] for 2 seconds or more to switch to the MUSIC-MODE 1 setting mode ("SOUND SCAPE" [53] flashes). The name of the currently set sound effect is shown in display [51].
- When commercially available CD software is loaded in the sub-source, the currently set track number is shown in display [51].
- Press the ▲ or ▼ side of button [16] to choose the track to be played on the sub-source.
- Press button [9] for 2 seconds or more to memorize the selected track. You will hear a beep when track memorization is finished.
- Press button [9] to cancel the setting mode. ("SOUND SCAPE" [53] changes from flashing to constant illumination.)

**MUSIC-MODE 2 (Program Mode)**

The track (sound effect) to be played on the sub-source can be set for each main source (multi-CD player) track.

- You can set the sound effect you want from track 1 through track 16 of the disc being played. For sound effects on tracks 17 onward, setting is performed automatically to sub-source track 1.

- Press the ▲ or ▼ side of button [16] to choose the track to be played on the sub-source.
- Press button [9] for 2 seconds or more to memorize the selected track. You will hear a beep when track memorization is finished.
- Press button [9] to cancel the setting mode. ("SOUND SCAPE" [53] changes from flashing to constant illumination.)

**Sub-Source Volume Adjustment**

You can adjust the volume of the sub-source played with the SOUND SCAPE function. (The same volume is set for all modes.)

- Perform the operations in steps 1 to 3 of "Using the SOUND SCAPE Function" to perform SOUND SCAPE playback.
- Press button [9] for 2 seconds or more to switch to the SOUND SCAPE setting mode ("SOUND SCAPE" [53] flashes).
- Press the (+) side of button [1] or [18] to increase the sub-source volume, or the (-) side to decrease the volume.
- Press button [9] to cancel the SOUND SCAPE setting mode. ("SOUND SCAPE" [53] changes from flashing to constant illumination.)

- Sound effects on up to 24 discs can be set as the main source.
  - In the case of discs for which disc title input has been performed with the multi-CD player's disc title input function, sound effect setting can be performed separately for each disc. (See "Disc Title Input" on page 12.)
  - If a disc title has not been input for a disc, sound effect setting for that disc cannot be performed separately from other discs. (The same setting applies to all discs for which input has not been performed.)
- Sound effect setting is performed for each main source disc. The settings for a main source disc are not deleted when that disc is changed.
- If settings are made for more than 24 discs, the oldest disc settings are deleted in order, and the new disc settings are memorized.
- Perform the operations in steps 1 to 3 of "Using the SOUND SCAPE Function" and switch the SOUND SCAPE mode to MUSIC-MODE 2.
- Play the disc for which you want to make a setting using a track number search.
- Press button [9] for 2 seconds or more to switch to the MUSIC-MODE 2 setting mode ("SOUND SCAPE" [53] flashes). The name of the sub-source sound effect is shown in display [51], and the main source track number in display [52].
- When commercially available CD software is loaded in the sub-source, the track number is shown in display [51].
- Press the ◀ or ▶ side of button [17] to choose the main source track.

## ID LOGIC operations

- This reference card gives a brief introduction to the following functions:
  - Tuner ID LOGIC functions
  - Functions controlled with buttons to when you are listening to a source (tuner, CD player)
- Refer to the owner's manual for more details of the functions outlined in this manual.

## Location Setting

Set the name of the country, state, and city (nearest city to the vehicle position) that the vehicle is positioned in.

- Press the button to switch to the FM band.
- Press the button for more than 2 seconds to switch to the location setting mode.
- Press the buttons to select the country.
- Press the button to change the input item to state input.
- Press the buttons to select the state.

- Press the button to set the city automatically (with the APS function).

After the APS function ends, location setting is completed and the location setting mode is canceled automatically.

- If the city name is flashing on the display, press the or button to select the city nearest your vehicle's position. When city input is finished, press the button to cancel the location setting mode.

## Updating the Vehicle Position While Moving

When you drive away from the set city, update the vehicle position to the city you are heading for.

- Press the button to switch to "Functions ON".
- Press the button to update the vehicle position with the APF function.   
After the APF function ends, the vehicle position is updated.
  - The APF function will not work when you are tuned to the AM band.

## Updating the Vehicle Position During Operation of a Source Other than the Tuner

When the background APF mode is turned ON, the APF function operates at regular intervals while you are listening to a source other than the tuner (such as the CD player). When you switch back to the tuner, the vehicle position will have been updated to the city nearest your vehicle's position.

- Press the button while receiving radio broadcasts to switch to "Functions ON".
- Press the button for more than 2 seconds to turn the background APF mode ON.
- Switch to a different source (CD player, etc.).  
While you are switched to the source other than the tuner, the APF function will operate and the vehicle position will be updated automatically.
- When you switch back to the tuner, the vehicle position will have been updated to the city nearest your vehicle's position.
  - To check the updated city, press the button to switch to the state name/city name display.

## Format Tuning

Format tuning lets you tune in a station from among those that can be received from the vehicle position that broadcasts the type of music (format) you want to hear.

- Press the button to switch to format mode.
- Press the button from among buttons to in which the format you want to hear is set.

| Button   | Set Format                                    |
|--|---|
|  | TOP 40, CLS ROCK, ROCK                        |
|  | EASY LIS, NOSTALGIA, SOFT AC, HITS AC, OLDIES |
|  | CLASSIC, JAZZ, PUBLIC                         |
|  | R AND B, SOFT R/B                             |
|  | COUNTRY                                       |
|  | TLK/NEWS, CBC ENGL, CBC FRCH                  |
| You can set the format you want. See "User Format Setting" for the setting method. |   |

A station that is broadcasting the format of the button you pressed is tuned.

- Pressing the same button repeatedly lets you tune in another station broadcasting the same format as that of the pressed button.
- When using format tuning with buttons to , press the button to switch to "Functions OFF".

## User Format Setting

You can set the formats you want from among 25 formats in buttons to . The 25 formats are as follows:

EASY LIS, NOSTALGIA, SOFT AC, HITS AC, OLDIES, TOP 40, CLS ROCK, ROCK, COUNTRY, R AND B, SOFT R/B, CLASSIC, JAZZ, PUBLIC, TLK/NEWS, SPANISH, ETHNIC, VARIETY, RELIGION, C GOSPEL, S GOSPEL, B GOSPEL, CBC ENGL, CBC FRCH, MISC

- Press the button for more than 2 seconds to switch to the user format setting mode.
- Press the buttons to select format you want to set.
- Press the button for more than 2 seconds from among buttons to in which you want to set the format.   
The number of the set button lights.  
The format is set in the pressed button when you hear a beep.
  - If you press a button for less than 2 seconds, the format currently set in the pressed button will be displayed.
- Repeat the operations in procedures 2 and 3 to set formats in the required buttons.
- Press the button to cancel the user format setting mode.

## Format BSM

The frequencies of stations with the same format can be stored automatically in buttons to .

- Tune in a station that has the format you want to store.

- Press the button to switch to the format name/call sign display, and check that the format is the one you want to store.

- Press the button to switch to "Functions ON".

- Press the button for more than 2 seconds to start format BSM.

The frequencies of other stations with the same format will be stored automatically in buttons to .

## Preset Tuning

You can recall stations stored in buttons to .

- Press the button to switch to normal mode.
- Press the button from among buttons to in which the station you want to recall is stored.   
The number of the pressed button lights.
  - When recalling a station stored in one of buttons to , press the button to switch to "Functions OFF".

## Functions of Buttons 7 to 12

When you are listening to a source (tuner, CD player), you can control the following functions with buttons to .

- "2 s" in the button column means that the button is pressed for more than 2 seconds.
- For the tuner, the following functions can be controlled when in the format mode with "Functions ON" set.
- For the built-in CD player, the functions with button can be controlled when the multi-CD player is connected to this unit.
- When the unit is used together with a 12-disc multi-CD player, the following functions can be controlled when "Functions ON" is set.



| Button | Tuner                                   | Built-in CD Player                                      | Multi-CD Player (6-disc or 12-disc) |
|--------|---|---|-------------------------------------|
|        | Display switching                       | Display switching                                       |                                     |
|        | (2 s) Compass mode                      | Disc title input mode                                   |                                     |
|        | APF                                     | Pause   |                                     |
|        | (2 s) Background APF mode               | Random play   |                                     |
|        | Local mode                              | —   | Disc title list                     |
|        | (2 s) Local sensitivity adjustment mode | —   | ITS clear                           |
|        | Display switching of multi-station      | —   | ITS memory                          |
|        | (2 s) BSM                               | —   | ITS play                            |
|        | Format scan                             | Scan play   |                                     |
|        | (2 s) Format BSM                        | Compression/DBE switching mode                          |                                     |
|        | Wide/narrow switching                   | Repeat play   | Play mode (repeat mode) switching   |
|        | (2 s) Seek/manual tuning mode switching | Track number search/fast forward-reverse mode switching |                                     |

## Installation

### The MAIN IN Switch (Fig. 6)

When connecting an equalizer or a DSP (DEQ-P800, etc.) to this unit, set the MAIN IN switch to the ON position using the tip of a pen, etc. When not connecting an equalizer or a DSP, set the MAIN IN switch to the OFF position. The system will not work properly if this switch is set wrongly.

- Operation of three RCA cords change as follows according to the ON/OFF position of MAIN IN switch.

|             | MAIN IN<br>OFF  ON | MAIN IN<br>OFF  ON |
|-------------|---|---|
| Gray label  | Subwoofer output  | Audio output  |
| White label | Front output  | Front input   |
| Green label | Rear output   | Rear input  |

#### CAUTION

• When connected with the "DEQ-P800" Hideaway DSP, be sure to change the MAIN IN switch to the ON position. If the power source is applied leaving the MAIN IN switch OFF, it is dangerous because a very big noise comes out from the speaker.

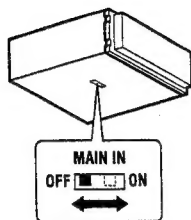


Fig. 6

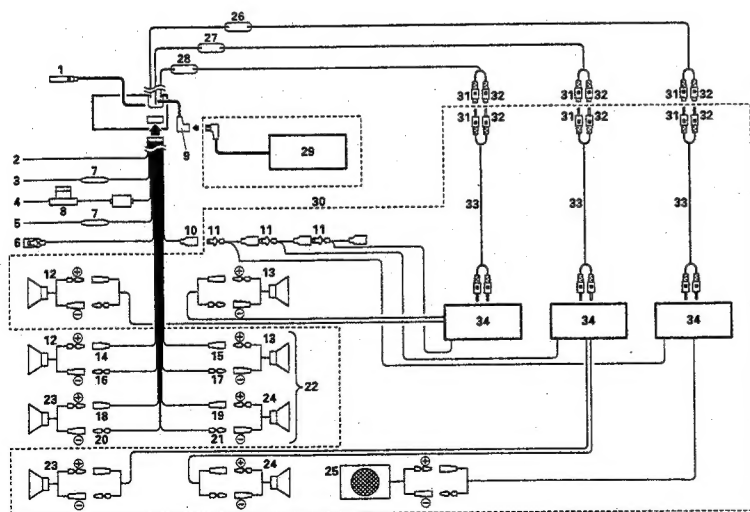


Fig. 7

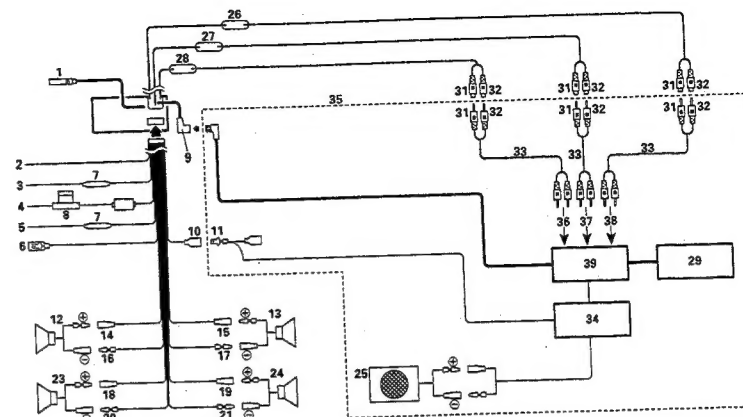


Fig. 8

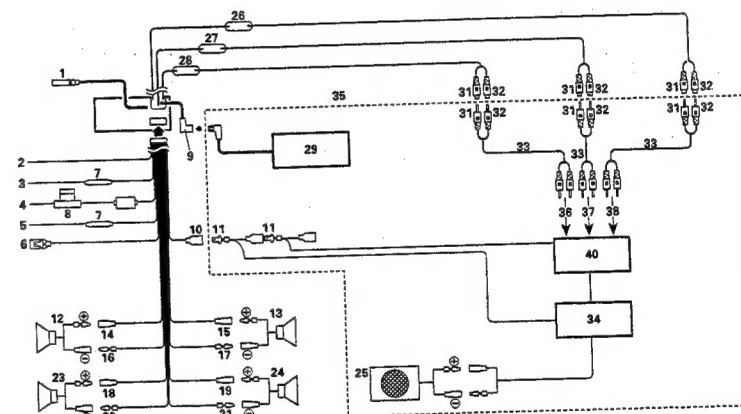


Fig. 9



## Connecting the Units

### Note:

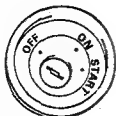
- This unit is for vehicles with a 12-volt battery and negative grounding. Before installing it in a recreational vehicle, truck, or bus, check the battery voltage.
- To avoid shorts in the electrical system, be sure to disconnect the battery  $\ominus$  cable before beginning installation.
- Refer to the owner's manual for details on connecting the various cords of the power amp and other units, then make connections correctly.
- Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap adhesive tape around them where they lie against metal parts.
- Route and secure all wiring so it cannot touch any moving parts, such as the gear shift, handbrake, and seat rails. Do not route wiring in places that get hot, such as near the heater outlet. If the insulation of the wiring melts or gets torn, there is a danger of the wiring short-circuiting to the vehicle body.
- Don't pass the orange lead through a hole into the engine compartment to connect to the battery. This will damage the lead insulation and cause a very dangerous short.
- Do not shorten any leads. If you do, the protection circuit may fail to work when it should.
- Never feed power to other equipment by cutting the insulation of the power supply lead of the unit and tapping into the lead. The current capacity of the lead will be exceeded, causing over heating.
- When replacing fuse, be sure to use only fuse of the rating prescribed on the fuse holder.
- If the RCA pin jacks on the unit are not being used, do not remove the caps attached to the end of the connector.
- Since a unique BPTL circuit is employed, never wire so the speaker leads are directly grounded or the left and right speaker  $\ominus$  leads are common.

- Speakers connected to this unit must be high-power types possessing minimum rating of 35 W and impedance of 4 to 8 ohms. Connecting speakers with output and/or impedance values other than those noted here can damage the speakers.
- When an external power amp is being used with this system, be sure not to connect the blue lead to the amp's power terminal. Likewise, do not connect the blue lead to the power terminal of the auto-antenna. Such connection could cause excessive current drain and malfunction.
- To prevent incorrect connection, the input side of the IP-BUS connector is blue, and the output side is black. Connect the connectors of the same colors correctly.
- If this unit is installed in a vehicle that does not have an ACC (accessory) position on the ignition switch, the red lead of the unit should be connected to a terminal coupled with ignition switch ON/OFF operations. If this is not done, the vehicle battery may be drained when you are away from the vehicle for several hours.

### ACC position



### NO ACC position



### Connection Diagram 1 (Fig. 7)

When DSP is not connected

### Connection Diagram 2 (Fig. 8)

When connected with "DEQ-P800" Hideaway DSP

### Connection Diagram 3 (Fig. 9)

When connected with another DSP than "DEQ-P800" Hideaway DSP or equalizer

- Antenna jack
- Black (ground)  
To vehicle (metal) body.
- Red  
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
- Orange  
To terminal always supplied with power regardless of ignition switch position.
- Yellow  
To lighting switch terminal.
- Yellow/black  
Cellular Mute  
If you use a cellular telephone, connect it via the Audio Mute lead on the cellular telephone. If not, keep the Audio Mute lead free of any connections.
- Fuse resistor
- Fuse holder
- IP-BUS input (blue)
- Blue  
To system control terminal of the power amp or Auto-antenna relay control terminal (Max. 300 mA 12 V DC).
- Blue
- Front/left speaker
- Front/right speaker
- Green
- Gray
- Green/black
- Gray/black
- Green/red
- Gray/red
- Black/green
- Black/gray
- With a 2 speaker system, connect to the 2 speakers in the front or the rear.
- Rear/left speaker
- Rear/right speaker
- Subwoofer speaker
- Gray label (subwoofer output or audio output)
- Green label (rear output or rear input)
- White label (front output or front input)
- Multi-CD player, etc. (sold separately)
- Use this for connections when you have the separately available amplifier.
- White
- Red
- Connecting cords with RCA pin plugs (sold separately)
- Power amp (sold separately)
- DSP system + Subwoofer system + Multi-CD player (sold separately)
- To the Front output terminal
- To the Rear output terminal
- To the Input terminal
- Hideaway DSP unit "DEQ-P800" (sold separately)
- Another DSP than "DEQ-P800" Hideaway DSP or equalizer (sold separately)

## 3. DISASSEMBLY

### ● Removing the Case (not shown)

- Remove the two screws.
- Remove the case.

### ● Removing the Panel Assy (Fig.10)

- Remove the two screws A.
- Disconnect the two stoppers indicated by arrows.
- Disconnect the two connectors.
- Remove the panel assy.

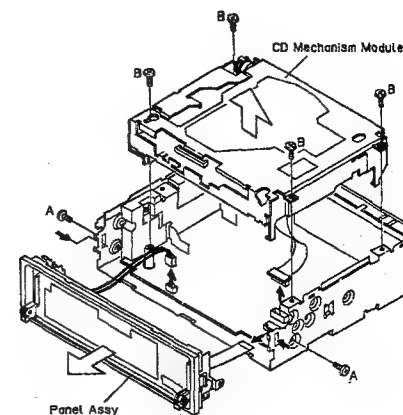
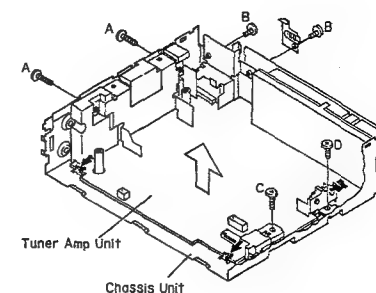


Fig.10

### ● Removing the Chassis Unit (Fig.11)

- Remove two screws A, two screws B, a screw C and a screw D.
- Unbend the tabs at three locations indicated by arrows until straight.
- Remove the chassis unit.



### CAUTION

When testing a P.C.B which has been separated from the chassis unit.  
It is necessary to short points A,B together.

Fig.11

#### 4. ADJUSTMENT

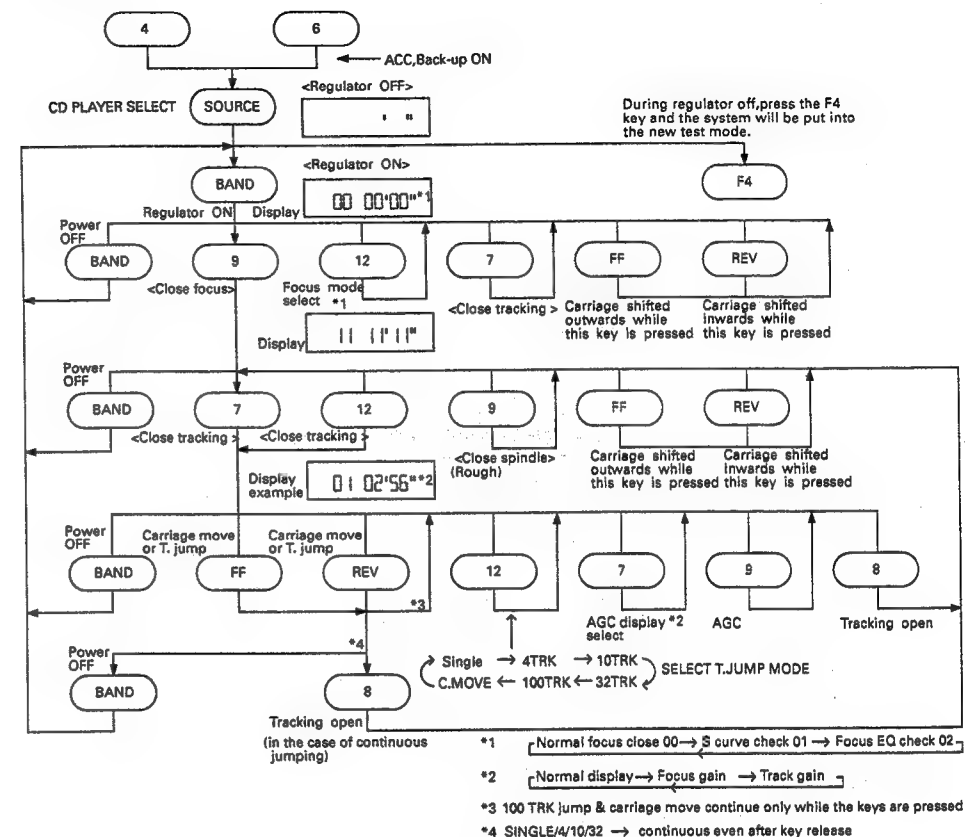
#### 4.1 CD PLAYER SECTION

### 1)Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO1 (approx. 2.5V) instead of GND. If REFO1 and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.
- Do not connect the negative probe of the measuring equipment to REFO1 and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO1 with the channel 2 negative probe connected to GND.
- Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.
- If by accident REFO1 comes in contact with GND, immediately switch the regulator or power OFF.
- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
  - Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
  - Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and/or electrical shocks to the system when making adjustment.
  - Test mode starting procedure  
Switch ACC, back-up ON while pressing the 4 and 6 keys together.

- Test mode cancellation  
Switch ACC, back-up OFF.
- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.
  - \*During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.
  - \*The unit will not load a disc.
- When the unit malfunctions this way, either reposition the light source, move the unit or cover the photo transistor.
- When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing another key. Otherwise, there is a risk of the actuator being destroyed.
- Turn power off when pressing the button FF or the button REV key for focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)
- SINGLE/4TRK/10TRK/32TRK will continue to operate even after the key is released. Tracking is closed the moment C-MOVE is released.
- JUMP MODE resets to SINGLE as soon as power is switched off.

### ● Flow Chart



● Measuring Equipment and Jigs

| Adjustment                           | Measuring equipment & jigs   |
|--------------------------------------|--|
| 1 Tracking Error Offset Adjustment 1 | DC V Meter<br>Extension cable:GGF1135  |
| 2 Grating Check / Adjustment 1       | Oscilloscope, ABEX TCD-784, Two L.P.F., Clock Driver<br>Extension cable:GGF1135  |
| 3 Grating Adjustment 2               | Oscilloscope, Grating Adjustment Filter (B.P.F.),<br>mV Meter, ABEX TCD-784, Two L.P.F., Clock Driver<br>Extension cable:GGF1135 |
| 4 Tracking Balance Adjustment 1      | Oscilloscope, L. P. F., ABEX TCD-784<br>Extension cable:GGF1135  |
| 5 Focus Bias Adjustment              | Oscilloscope, ABEX TCD-784<br>Extension cable:GGF1135  |
| 6 RFO1 Offset Adjustment             | Oscilloscope, ABEX TCD-784<br>Extension cable:GGF1135  |
| 7 Tracking Error Offset Adjustment 2 | DC V Meter<br>Extension cable:GGF1135  |
| 8 Tracking Balance Adjustment 2      | Oscilloscope, L. P. F., ABEX TCD-784<br>Extension cable:GGF1135  |

● Adjustment Point

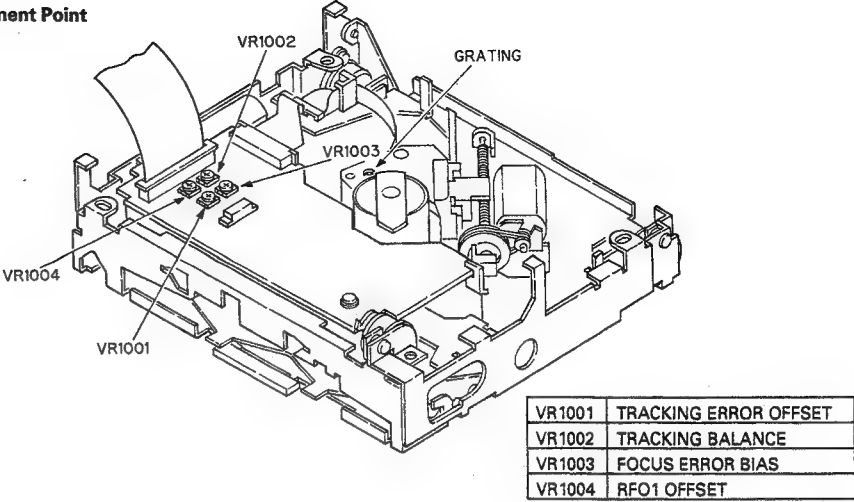


Fig.12

● Test Point

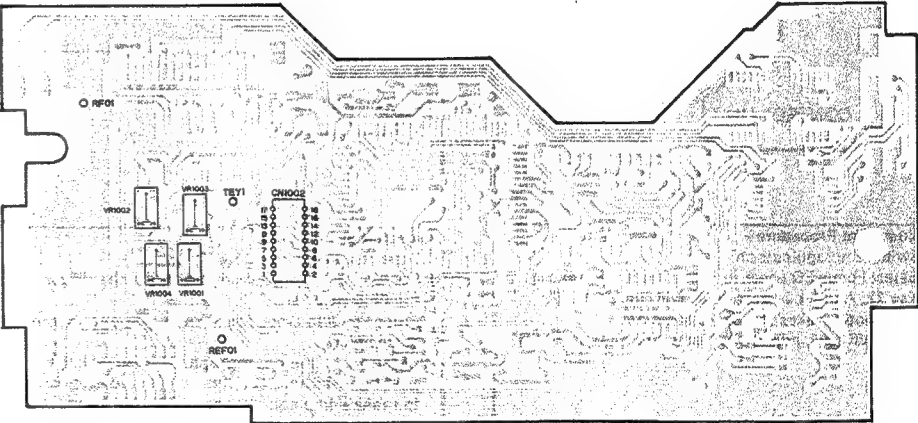


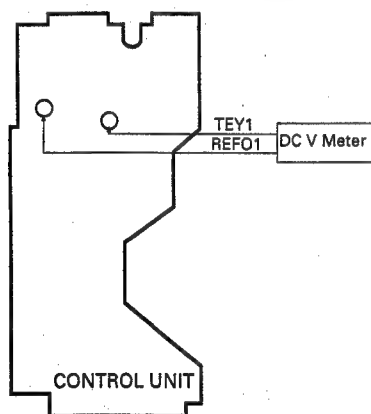
Fig.13



## 1 Tracking Error Offset Adjustment 1

- **Purpose :**  
To adjust the offset of the tracking pre-amp to zero
- **Symptoms of Mal-adjustment :**  
Track search NG, Carriage runaway, Poor playability.

|                                    |                        |
|------------------------------------|------------------------|
| • <b>Measuring Equipment / Jig</b> | • DC V Meter           |
| • <b>Measuring Point</b>           | • TEY1                 |
| • <b>Test Disc, Mode</b>           | • TEST MODE            |
| • <b>Adjustment Point</b>          | • VR1001(TE OFFSET VR) |

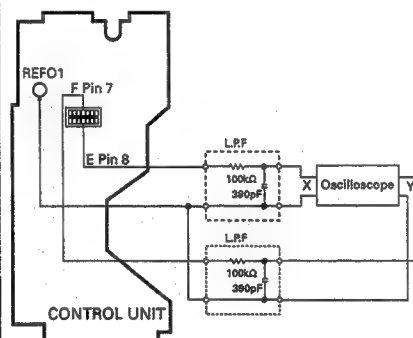
**Adjustment Procedure**

1. Switch the regulator on.  
Select Focus EQ check in Focus mode by pressing Key 12. And the indication 00 will change to 02.  
This mode makes the laser turned off.
2. Using VR1001, adjust TEY1 to  $0 \pm 25\text{mV}$  w.r.t. REFO1.

## 2 Grating Check / Adjustment 1

- **Purpose :**  
To check that the PU grating is correctly aligned after the PU unit has been replaced
- **Symptoms of Mal-adjustment :**  
Unable to play disc, track skip during search, search NG.

|                                    |                            |
|------------------------------------|----------------------------|
| • <b>Measuring Equipment / Jig</b> | • Oscilloscope, Two L.P.F. |
| • <b>Measuring Point</b>           | • E, F                     |
| • <b>Test Disc, Mode</b>           | • ABEX TCD-784, TEST MODE  |
| • <b>Adjustment Point</b>          | • Grating hole             |

**Adjustment Procedure**

1. Load disc and switch regulator on.
2. Position the PU unit in the center of the disc using the FF & REV keys.
3. Press key 9 to close focus and press once more to close spindle.
4. Referring to the photographs given check that the grating is within  $\pm 45^\circ$ . If not, it should be possible to make a fine adjustment to the grating by slowly tuning the grating screw. If, however during the adjustment the lissajous figure is seen to "FLIP" then the null point must be found and the adjustment made from there (see next section).

Lissajous figure (AC input)  
Horizontal axis E 10mV/div.  
Vertical axis F 10mV/div.



Waveform 1

60°=NG



Waveform 2

45°=OK  
(Limit)

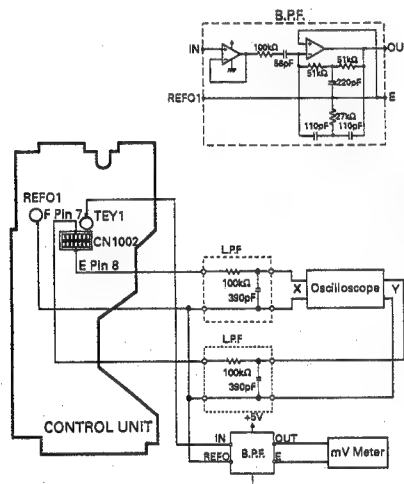
Waveform 3

0°=BEST  
(Doesn't become  
a single line due  
to eccentricity)

## 3 Grating Adjustment 2

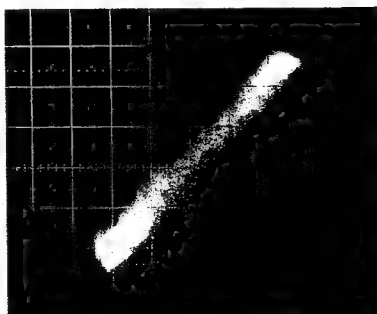
- Purpose :**  
This needs to be done if the previous adjustment was unsuccessful
- Symptoms of Mal-adjustment :**  
Unable to play disc, track skipping, track search NG.

- Measuring Equipment / Jig** · Oscilloscope, Grating Adjustment filter (B.P.F.), mV Meter, Two L.P.F., Clock Driver
- Measuring Point** · TEY1, E, F
- Test Disc, Mode** · ABEX TCD-784, TEST MODE
- Adjustment Point** · Grating hole

**Adjustment Procedure**

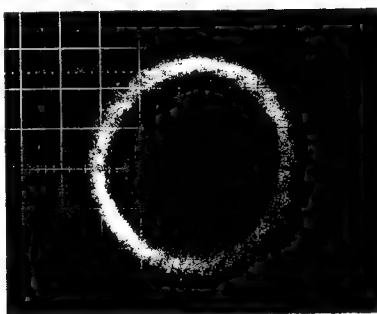
1. Load disc and switch regulator on.
2. Position the PU unit in the center of the disc using the FF & REV keys.
3. Press key 9 to close focus and press once more to close spindle.
4. While monitoring the output of the B.P.F. connected to TEY1, slowly turn the grating screw. The output voltage should pass through many minimums; search for the minimum which is clearly smaller than the rest - this is the "null point", where the E & F sub-beams are lined up with the tracks on the disc.
5. From this null point, turn the grating screw clockwise (as seen from the underside of the PU unit) until the lissajous waveform is a single line (or close as possible) as shown in the photograph.

Null Point=180°  
Lissajous figure (AC input)  
Horizontal axis E 10mV/div.  
Vertical axis F 10mV/div.



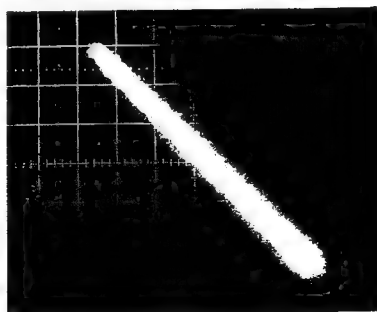
Waveform 4

"Rough" adjustment=90°



Waveform 5

Final adjustment=0°

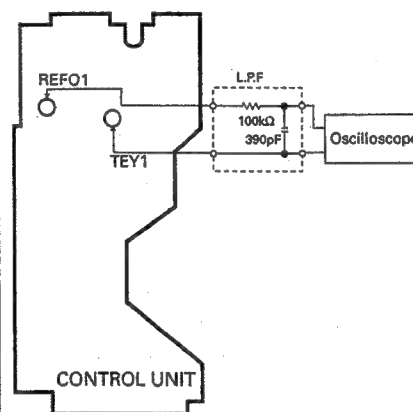


Waveform 6

## 4 Tracking Balance Adjustment 1

- Purpose :**  
To equate the sensitivity of the F channel to that of the E channel
- Symptoms of Mal-adjustment :**  
Track search NG, Poor playability carriage runaway.

- Measuring Equipment / Jig** · Oscilloscope, L.P.F.
- Measuring Point** · TEY1
- Test Disc, Mode** · ABEX TCD-784, TEST MODE
- Adjustment Point** · VR1002 (T.BAL)

**Adjustment Procedure**

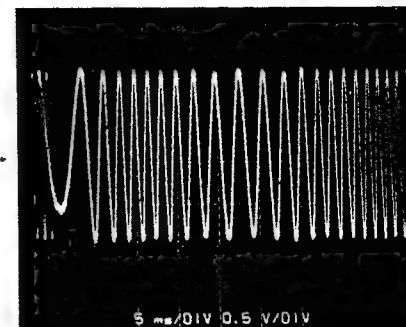
1. Load disc and switch the regulator on.
2. Position the PU unit in the center of the disc using the FF & REV keys.
3. Close focus by pressing key 9.
4. Observing the TEY1 waveform on the oscilloscope, adjust VR1002 until the positive and negative halves have the same amplitude (see waveform 7-9).

**Check**

After adjustment the TEY1 waveform should have an amplitude of  $1.5 \pm 0.65$  Vpp. (ABEX TCD-784) (Providing focus bias is OK)

+5% NG

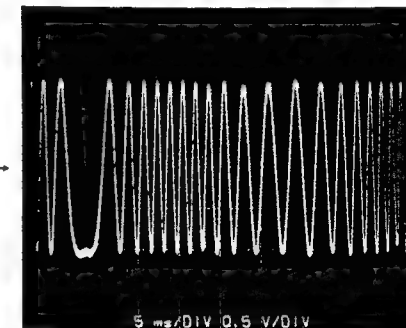
REFO1→



Waveform 7

±0% OK

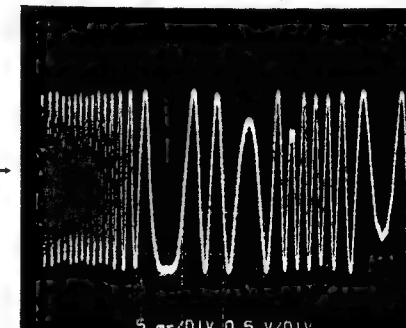
REFO1→



Waveform 8

-5% NG

REFO1→



Waveform 9

## 5 Focus Bias Adjustment

**Purpose :**  
To adjust the focus servo reference so that the RF waveform is an optimum.

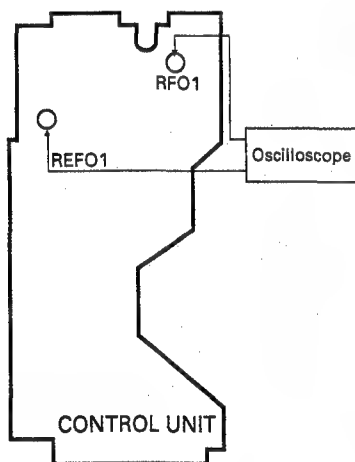
**Symptoms of Mal-adjustment :**  
Difficulty in closing focus, poor playability.

**Measuring Equipment / Jig** : Oscilloscope

**Measuring Point** : RFO1

**Test Disc , Mode** : ABEX TCD-784, NORMAL MODE

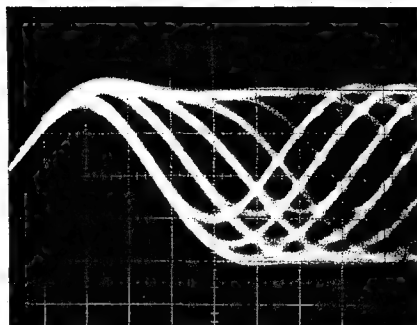
**Adjustment Point** : VR1003 (FE BIAS VR)

**Adjustment Procedure**

1. Play track number 18.
2. Adjust VR1003 so that the RFO1 waveform amplitude is a maximum and eye pattern is optimum.

**Check**

After adjustment the RFO1 waveform should have an amplitude of  $1.7 \pm 0.65$  Vpp. (ABEX TCD-784)



OK

Waveform 10



AC Mode Before adjustment Waveform 11

## 6 RFO1 Offset Adjustment

**Purpose**  
To adjust the RFO1 waveform offset to an optimum.

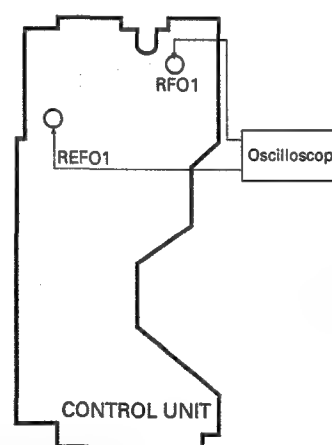
**Symptoms of Mal-adjustment**  
Difficulty in closing focus, poor playability.

**Measuring Equipment / Jig** : Oscilloscope

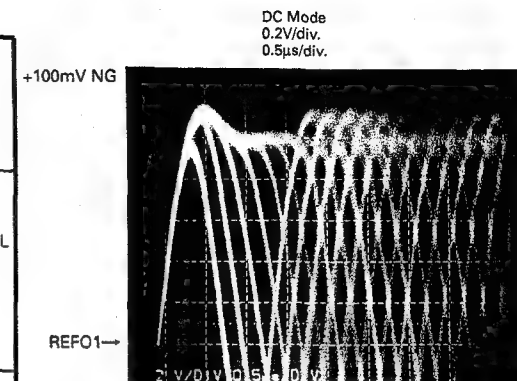
**Measuring Point** : RFO1

**Test Disc , Mode** : ABEX TCD-784, NORMAL MODE

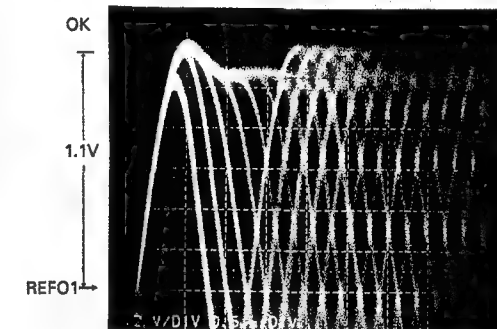
**Adjustment Point** : VR1004 (RFO1 OFFSET VR)

**Adjustment Procedure**

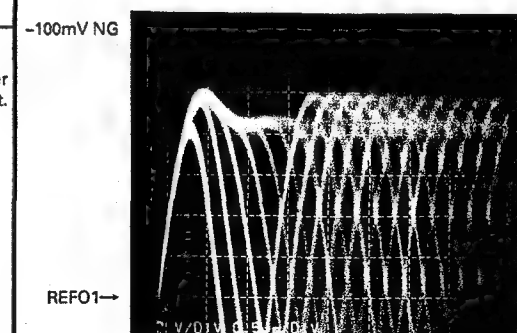
1. Play track number 18.
2. Adjust VR1004 so that the peak value of the upper envelope of the RFO1 waveform is at +1.1VDC w.r.t. REFO1 (See waveform 12-14).



Waveform 12



Waveform 13



Waveform 14

DC Mode  
0.2V/div.  
0.5μs/div.

+100mV NG

REFO1→

OK

1.1V

REFO1→

-100mV NG

REFO1→



## 7 Tracking Error Offset Adjustment 2

**Purpose :**  
To check the offset of the tracking pre-amp is zero and adjust if necessary.

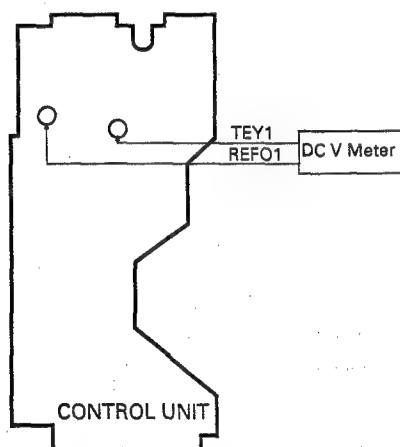
**Symptoms of Mal-adjustment :**  
Track search NG, Carriage runaway, Poor playability.

**Measuring Equipment / Jig** : DC V Meter

**Measuring Point** : TEY1

**Test Disc, Mode** : TEST MODE

**Adjustment Point** : VR1001(TE OFFSET VR)

**Adjustment Procedure**

1. Switch the regulator on.  
Select Focus EQ check in Focus mode by pressing Key 12. And the indication 00 will change to 02.  
This mode makes the laser turned off.
2. Using VR1001, adjust TEY1 to  $0 \pm 25\text{mV}$  w.r.t. REFO1.

## 8 Tracking Balance Adjustment 2

**Purpose :**  
To equate the sensitivity of the F channel to that of the E channel. This needs only be done if the TE OFF-SET volume was re-adjusted in the previous step

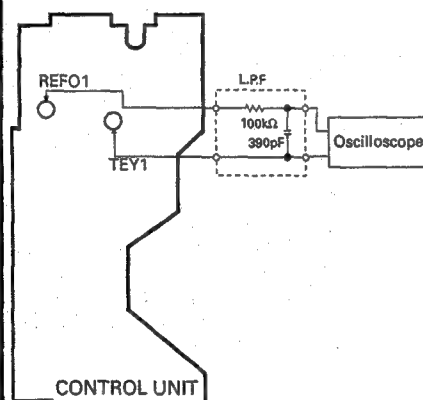
**Symptoms of Mal-adjustment:**  
Track search NG, Poor playability, carriage runaway.

**Measuring Equipment / Jig** : Oscilloscope, L.P.F.

**Measuring Point** : TEY1

**Test Disc, Mode** : ABEX TCD-784, TEST MODE

**Adjustment Point** : VR1002 (T.BAL)

**Adjustment Procedure**

1. Load disc and switch the regulator on.
2. Position the PU unit in the center of the disc using the FF & REV keys.
3. Close focus by pressing key 9.
4. Observing the TEY1 waveform on the oscilloscope, adjust VR1002 until the positive and negative halves have the same amplitude (See waveform 7-9).

**Check**

After adjustment the TEY1 waveform should have an amplitude of  $1.5 \pm 0.65 \text{ Vpp}$ . (ABEX TCD-784)

## 4.1 TUNER SECTION

## ● Connection Diagram

**NOTE:**

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

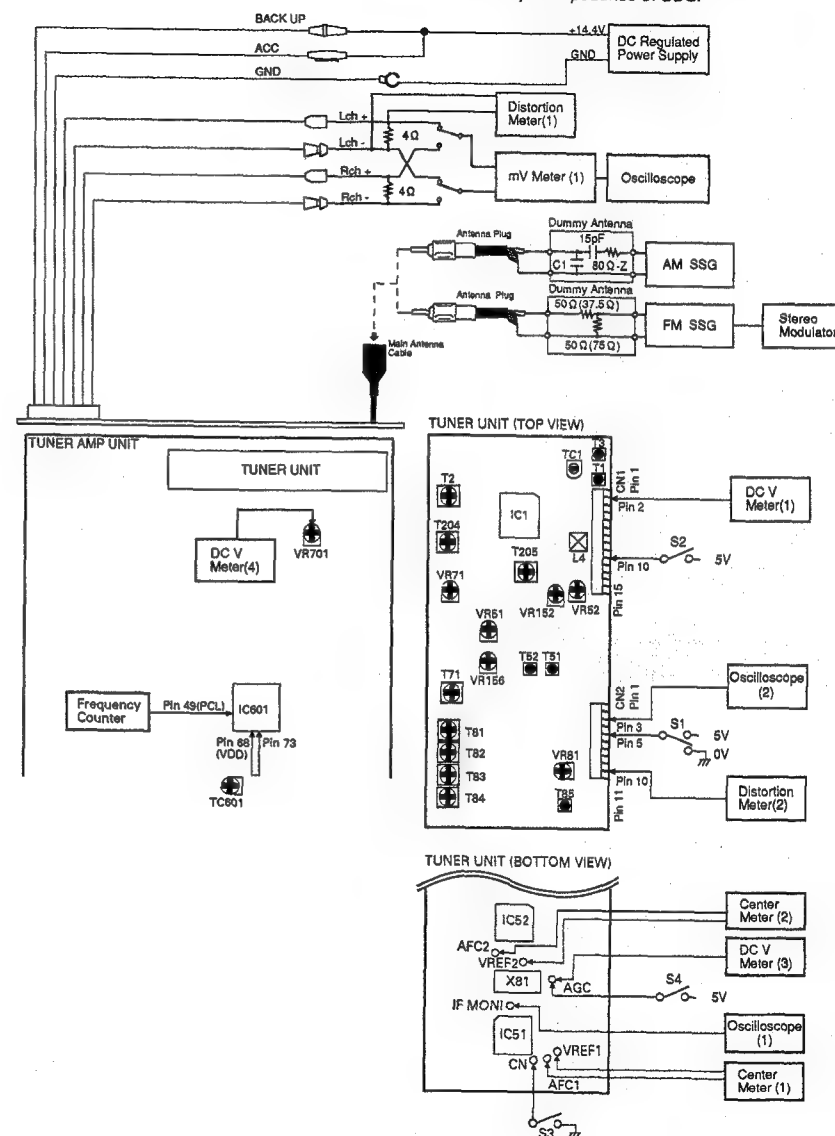


Fig.14

## ● DEH-P815/UC,DEH-P813/ES

## AM ADJUSTMENT (ES Model tuning steps at 10kHz)

|    | No. | AM SSG(400Hz,30%) |             | Displayed<br>Frequency(kHz) | Adjustment<br>Point | Adjustment Method<br>(Switch Position) |
|----|-----|-------------------|-------------|-----------------------------|---------------------|--|
|    |     | Frequency(kHz)    | Level(dBμV) |                             |                     |  |
| IF | 1   | 1000              | 20          | 1000                        | T204,T205           | mV Meter(1) : Maximum                  |

## FM ADJUSTMENT

Modulation M: MONO MOD., 400Hz 100%(75kHz Dev.)

S: STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE: Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

|              | No. | FM SSG   |            | Displayed<br>Frequency(MHz) | Adjustment<br>Point | Adjustment Method<br>(Switch Position)         |
|--------------|-----|--|------------|-----------------------------|---------------------|--|
|              |     | Frequency(MHz)   | Level(dBf) |                             |                     |  |
| TUN Volt     | 1   | .....  | .....      | 108.0                       | L4                  | DC V Meter(1) : 6.5V±0.1V                      |
| IF           | 1   | 98.1 M   | 65         | 98.1                        | T51                 | Center Meter(2) : 0 (S1:0V)                    |
|              | 2   | 98.1 M   | 65         | 98.1                        | T52                 | Distortion Meter(1) : Minimum (S1:0V)          |
|              | 3   | Repeat No.1-2 alternately so that the center meter indicates the 0 output and distortion meter indicates the minimum output. |            |                             |                     |  |
| ANT,RF       | 1   | 89.9 M   | 5-15       | 89.9                        | T1,T3               | (S1:0V)  |
| IFT          | 1   | 98.1 M   | 5-15       | 98.1                        | T2                  | mV Meter(1) : Maximum (S1:0V)                  |
| IHF          | 1   | 98.1 M   | 13         | 98.1                        | T71                 | mV Meter(1) : Maximum (S1:0V)                  |
| MaxSep       | 1   | 98.1 S   | 65         | 98.1                        | VR152               | mV Meter(1) : Separation Maximum (S1:0V)       |
| Soft<br>Mute | 1   | 98.1 M   | 65         | 98.1                        | .....               | mV Meter(1) : A(0dB)(STEREO MODE)              |
|              | 2   | 98.1 M   | 15         | 98.1                        | VR156               | mV Meter(1) : A-3dB                            |
| ARC          | 1   | 98.1 S   | 40         | 98.1                        | VR52                | mV Meter(1) : Separation 5dB±3dB (STEREO MODE) |
| SD           | 1   | 98.1 S   | 22         | 98.1                        | VR51                | Oscilloscope(2) : Approx. 3V(S2:5V)            |

## ● DEH-P815RDS/EW

## MW/LW ADJUSTMENT

|    | No. | AM SSG(400Hz,30%) |             | Displayed<br>Frequency(kHz) | Adjustment<br>Point | Adjustment Method<br>(Switch Position) |
|----|-----|-------------------|-------------|-----------------------------|---------------------|--|
|    |     | Frequency(kHz)    | Level(dBμV) |                             |                     |  |
| IF | 1   | 999               | 20          | 999                         | T204,T205           | mV Meter(1) : Maximum                  |

## FM ADJUSTMENT

Modulation M: MONO MOD., 400Hz 100%(75kHz Dev.)

S: STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE: Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

|          | No. | FM SSG   |            | Displayed<br>Frequency(MHz) | Adjustment<br>Point | Adjustment Method<br>(Switch Position)         |
|----------|-----|--|------------|-----------------------------|---------------------|--|
|          |     | Frequency(MHz)   | Level(dBf) |                             |                     |  |
| TUN Volt | 1   | .....  | .....      | 108.0                       | L4                  | DC V Meter(1) : 6.5V±0.1V                      |
| IF       | 1   | 98.1 M   | 65         | 98.1                        | T85                 | Center Meter(1) : 0 (S1:0V)                    |
|          | 2   | 98.1 M   | 65         | 98.1                        | T51                 | Center Meter(2) : 0 (S1:0V)                    |
|          | 3   | 98.1 M   | 65         | 98.1                        | T52                 | Distortion Meter(2) : Minimum (S1:0V)          |
|          | 4   | Repeat No.2-3 alternately so that the center meter indicates the 0 output and distortion meter indicates the minimum output. |            |                             |                     |  |
| ANT,RF   | 1   | 106.1 M  | 5-15       | 106.1                       | TC1                 | mV Meter(1) : Maximum (S1:0V)                  |
|          | 2   | 89.9 M   | 5-15       | 89.9                        | T1,T3               | (S1:0V)  |
|          | 3   | Repeat No.1-2 alternately so that the mv meter indicates the maximum output.   |            |                             |                     |  |
| IMAGE    | 1   | 129.3 M  | 70-90      | 107.9                       | TC1                 | mV Meter(1) : Minimum (S1:0V)                  |
| IFT      | 1   | 98.1 M   | 5-15       | 98.1                        | T2                  | mV Meter(1) : Maximum (S1:0V)                  |
| IHF      | 1   | 98.1 M   | 13         | 98.1                        | T71                 | mV Meter(1) : Maximum (S1:0V)                  |
| MaxSep   | 1   | 98.1 S   | 65         | 98.1                        | VR152               | mV Meter(1) : Separation Maximum (S1:0V)       |
| ST,THD   | 1   | 98.1 S   | 65         | 98.1                        | T71                 | mV Meter(1) : Minimum (S1:0V)                  |
| MaxSep   | 1   | 98.1 S   | 65         | 98.1                        | VR152               | mV Meter(1) : Separation Maximum (S1:0V)       |
|          | 2   | 98.1 M   | 50         | 98.1                        | T83,T84             | Oscilloscope(1) : Maximum (S1:5V)              |
|          | 3   | 78.1 M   | 50         | 78.1                        | T81                 | (S3:ON)  |
| IF Gain  | 1   | 98.1 M   | 14         | 98.1                        | VR71                | DC V Meter(3) : 4V±0.1V                        |
|          | 2   | 98.1 M   | 15         | 98.1                        | VR81                | mV Meter(1) : A(0dB)(STEREO MODE)              |
|          | 3   | 98.1 M   | 15         | 98.1                        | VR81                | mV Meter(1) : A-3dB                            |
| ARC      | 1   | 98.1 S   | 40         | 98.1                        | VR52                | mV Meter(1) : Separation 5dB±3dB (STEREO MODE) |
| SD       | 1   | 98.1 S   | 22         | 98.1                        | VR51                | Oscilloscope(2) : Approx. 3V(S2:5V)            |

**CLOCK ADJUSTMENT**

| No. | Adjustment Point | Adjustment Method Point             |
|-----|------------------|-------------------------------------|
| 1   |                  | Pin73 of IC801 connect to 5V        |
| 2   | TC601            | Frequency Counter : 1.048576MHz±2Hz |

● **DEH-P815RDS/EW****RDS SL ADJUSTMENT**

| No. | FM SSG         |            | Displayed Frequency(MHz) | Adjustment Point | Adjustment Method (Switch Position) |
|-----|----------------|------------|--------------------------|------------------|-------------------------------------|
|     | Frequency(MHz) | Level(dBf) |                          |                  |                                     |
| 1   | 98.1 S         | 45         | 98.1                     | VR701            | DC V Meter(4) : 1.75V±0.05V         |

● **ID-Logic Service Mode(DEH-P815/UC)**

- How to enter into the ID-logic service mode  
While pressing keys 4 and 6 at a time, press the back-up ON or clear button ON.  
Change to tuner mode.

| Key | Display               |
|-----|-----------------------|
| 7   | Date of ROM version   |
| 8   | Copyright information |
| 9   | User information      |
| 10  | User code             |

- Resetting the ID-logic service mode  
Press the clear button ON this unit. Or turn off this unit back-up and wait for about one minute.

● **Error Numbers And New Test Mode**● **Indicating An Error Number**

If the CD should fail to operate in CD multi player or if an error has taken place during the operation and resulted in an error, the player will enter into the error mode. And the cause of such error is numerically indicated.  
This is aimed at assisting an analysis or repair.

**(1) Basic Means of Display**

- With ERROR indicated in "MODE" on IP-BUS Display date, an error code is transmitted by the use of MIN and SEC. Identical date are transmitted with MIN and SEC.

Examples of Display ERROR-XX

**(2) Error Codes**

| Error Code | Classification | Description                                | Cause/Detail  |
|------------|----------------|--|---|
| 10         | ELECTRIC       | Carriage home failure                      | Carriage doesn't move to or from the innermost position<br>→Home switch failed and/or carriage immobile |
| 11         | ELECTRIC       | Focus failure                              | Focus failed<br>→Defects, disc upside-down, severe vibration  |
| 12         | ELECTRIC       | SETUP failure<br>Subcode failure           | Spindle failed to lock or subcode unreadable<br>→Spindle defective, defect, severe vibration            |
| 14         | ELECTRIC       | Mirror failure                             | Unrecorded CD-R<br>The disc is upside-down, defects, vibration  |
| 17         | ELECTRIC       | Set up failure                             | AGC protect failed<br>→Defects, disc upside-down, severe vibration                                      |
| 30         | ELECTRIC       | Search time out                            | Failed to reach target address<br>→Carriage/tracking defective and/or defects                           |
| A0         | SYSTEM         | Power failure                              | Power overvoltage or short circuit detected<br>→Switching transistor defective and/or power abnormal    |
| 50         | MECHANISM      | An error upon ejection                     | MAG switch release time has time out<br>Elevation time out when eject                                   |
| 60         | MECHANISM      | An error while putting in and out the tray | Tray in / out time has time out<br>Tray is caught when put in   |
| 70         | MECHANISM      | An error upon elevation                    | Elevation time has time out   |
| 80         | MECHANISM      | An error with an empty magazine inserted   | No disc is available  |

\* Setup means a series of operations after focusing up to sound output.

● **New Test Mode(aging operation and setup analysis)**

The single CD player plays in normal mode. After being set up, it will display FOK (focus), LOCK (spindle), subcode, sound skip, protection against a mechanical error or the like, occurrence of an error, cause and time of an expiry, if any, (and disc number)

During the setup, the CD software operation status (internal RAM and C-point) is displayed.

**(1) How to enter NEW TEST Mode**

See the test mode flow chart Page 23.

## (2) Relations of keys between TEST and NEW TEST Modes

| Keys | Test Mode        |                   | New Test Mode    |  |
|------|------------------|-------------------|------------------|--|
|      | Regulator OFF    | Regulator ON      | PLAY in progress | Error Occurred, Protection Activated       |
| BAND | Regulator ON     | Regulator OFF     | —                | Time of occurrence / cause of error select |
| FF   | —                | FWD-Kick          | TRACK UP / FF    | —  |
| REV  | —                | REV-Kick          | TRACK DOWN / REV | —  |
| 7    | —                | Tracking close    | RPT              | —  |
| 8    | —                | Tracking open     | RANDOM           | —  |
| 9    | —                | Focus close       | ITS              | —  |
| 12   | To New Test Mode | Focus Mode Select | PAUSE            | —  |

Operations, such as EJECT, CD ON/OFF, etc. are performed normally.

## (3) Error Cause (Error Number) Code

| Error Code | Classification | Mode | Description                | Cause                        | Detail                          |
|------------|----------------|------|----------------------------|------------------------------|---------------------------------|
| 40         | ELECTRIC       | PLAY | FOK=L 100ms                | Put out of focus             | Scratch,                        |
| 41         | ELECTRIC       | PLAY | LOCK=L 150ms               | Spindle unlock               | Stain,                          |
| 42         | ELECTRIC       | PLAY | Subcode unacceptable 500ms | Failed to read subcode       | Vibration, Servo defect, etc... |
| 43         | ELECTRIC       | PLAY | Sound skipped              | Last address memory operated |                                 |

## (4) Indicating an Operation Status During Setup

| Status No. | Description                            | Protection operation   |
|------------|--|--|
| 01         | Carriage home mode started             | None   |
| 02         | Carriage moving inwards                | 10-second time out, Home switch failed                                       |
| 03         | Carriage moving outwards               | 10-second time out, Home switch failed                                       |
| 05         | Carriage moving outwards               | None   |
| 11         | Setup started                          | None   |
| 12         | Spindle turn/Focus search started      | None   |
| 13         | Waiting for focus closure (XSI=L)      | Failure to close focus   |
| 10, 14     | Waiting for focus closure (FOK=H)      | Failure to close focus   |
| 15, 16, 17 | Focus closed, Tracking open            | Focus disrupted  |
| 18         | During focus AGC                       | Focus disrupted  |
|            | Subcode waiting                        |  |
| 19         | During tracking AGC                    | Disrupted focus  |
| 20         | Waiting for MIRR, LOCK or subcode read | Focus disrupted, MIRR NG, Failure to lock, Carriage closed, SPINDLE=ADAPTIVE |
|            | Failed to read subcode                 |  |

## (5) Example of Display

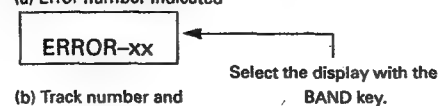
SET UP in progress

| TNo. | Min | Sec |
|------|-----|-----|
| 11   | 11  | 11  |

Operation (PLAY, SEARCH, etc.) in progress perfectly identical with that in the normal mode.

Protection/Error upon occurrence

(a) Error number indicated

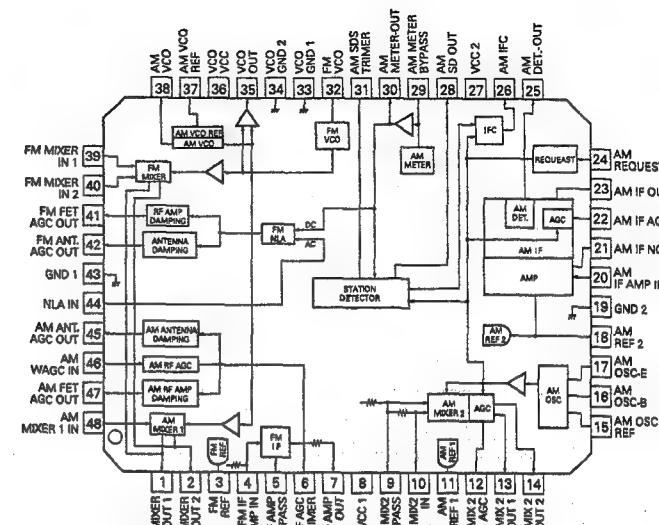


(b) Track number and absolute time indicated

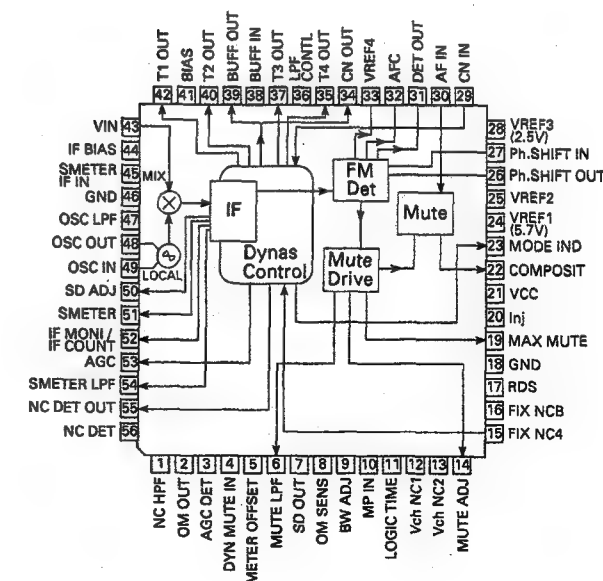
| TNo. | Min | Sec |
|------|-----|-----|
| 10   | 40  | 05  |

## ICs

PA2021B



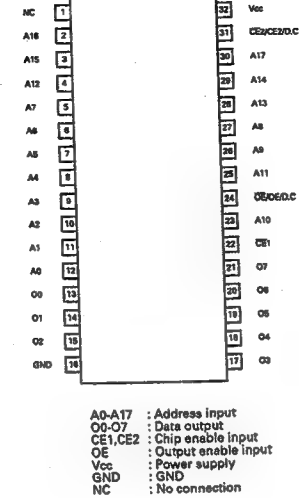
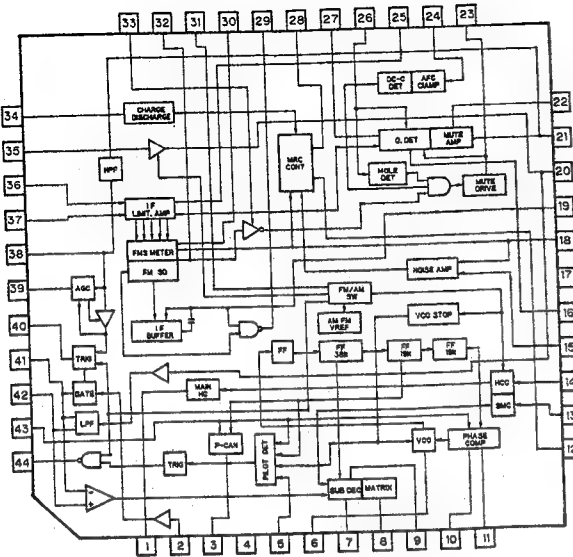
HA12186F



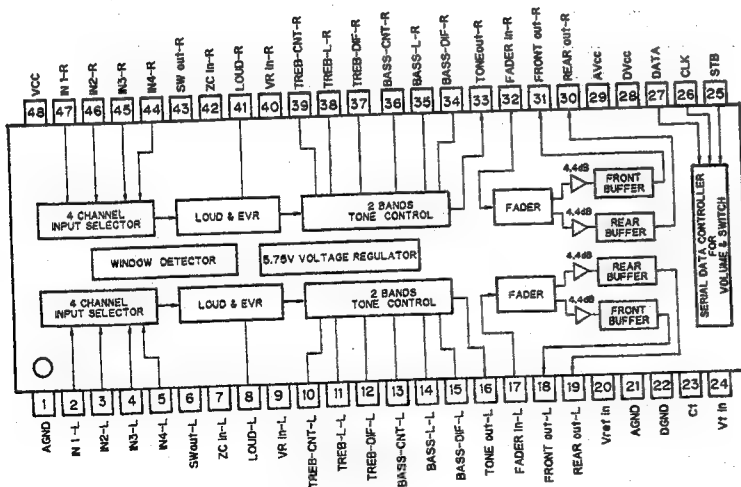


LA1868M-PA

PD4565A



SN761025DL



## ● Pin Functions(PD4557A, PD4561A)

| Pin No. | Pin Name | I/O | I/O Format | Function and Operation                    |
|---------|----------|-----|------------|---|
| 1       | RIDRST   | O   | C          | Reset output                              |
| 2       | RIDSEL   | O   | C          | Select output                             |
| 3       | NC       |     |            | Not used                                  |
| 4       | AVSS     |     |            | A/D converter GND                         |
| 5       | RIDRDY   | I   |            | Ready input                               |
| 6       | VCAVOL   | O   | C          | Analog output                             |
| 7       | AVREF1   |     |            | D/A converter reference voltage           |
| 8       | KYDT     | I   |            | Key data input                            |
| 9       | DPDT     | O   | C          | Display data output                       |
| 10      | SWVDD    | O   | C          | Grille power supply control output        |
| 11      | RIDDI    | I   |            | Communication data input                  |
| 12      | RIDDO    | O   | C          | Communication data output                 |
| 13      | RIDCK    | O   | C          | Communication clock output                |
| 14      | BRST     | O   | C          | P-BUS reset output                        |
| 15      | BRXEN    | I/O | C          | P-BUS enable input/output                 |
| 16      | BSRQ     | I   | C          | P-BUS serial pole request input           |
| 17      | BSIO     | I/O | C          | P-BUS serial data input/output            |
| 18      | BSCK     | I/O | C          | P-BUS serial clock input/output           |
| 19      | CDRST    | O   | C          | Reset for CD mechanism module             |
| 20      | ADPW     | O   | C          | A/D converter reference voltage           |
| 21-28   | NC       |     |            | Not used                                  |
| 29      | PDI      | I   |            | PLL data input                            |
| 30      | PCK      | O   | C          | PLL clock output                          |
| 31      | PDO      | O   | C          | PLL data output                           |
| 32      | PCE      | O   | C          | PLL chip enable output                    |
| 33      | VSS      |     |            | GND                                       |
| 34      | MONO     | O   | C          | Forced mono output                        |
| 35      | AM/FM    | O   | C          | AM/FM select output                       |
| 36      | NCB      | O   | NH         | DYNAS filter fix output                   |
| 37      | SUBW0    | O   | NH         | Sub woofer control 0                      |
| 38      | SUBW1    | O   | NH         | Sub woofer control 1                      |
| 39      | CDPW     | O   | NH         | CD/Tuner select                           |
| 40      | TUNPW    | O   | C          | Tuner power control output                |
| 41      | ASENB    | O   | C          | Slave power supply control output         |
| 42      | BUSMUTE  | O   | C          | BUS mute output                           |
| 43      | TMUTE    | O   | C          | Tuner mute output                         |
| 44      | NC       |     |            | Not used                                  |
| 45      | PEE      | O   | C          | Beep tone output                          |
| 46      | MUTE     | O   | C          | Mute output                               |
| 47      | SYSPW    | O   | C          | System power supply control output        |
| 48      | ANTFIX   | O   | NH         | Tuner diversity fix select output         |
| 49      | PCL      | O   | C          | Clock adjustment output                   |
| 50      | LCDPW    | O   | C          | LCD power supply control output           |
| 51      | DIM      | O   | C          | Dimmer select output                      |
| 52      | ILMPW    | O   | C          | Illumination power supply control output  |
| 53      | CSNS     | I   |            | Flap close sense input                    |
| 54      | ISENS    | I   |            | Illumination sense input                  |
| 55      | PRBSW    | I   |            | PRE OUT/SUB WOOFER select input           |
| 56      | TX       | O   | C          | IP-BUS data output                        |
| 57      | RX       | I   |            | IP-BUS data input                         |
| 58      | IPPW     | O   | C          | IP-BUS driver power supply control output |
| 59      | SD       | I   |            | SD input                                  |
| 60      | RESET    | I   |            | Reset input                               |
| 61      | TELIN    | I   |            | Telephone mute input                      |
| 62      | BSNS     | I   |            | Back up power sense input                 |
| 63      | ASENS    | I   |            | ACC power sense input                     |
| 64      | DSNS     | I   |            | Grille detach sense                       |
| 65      | VST      | O   | C          | Strobe pulse output for electronic volume |

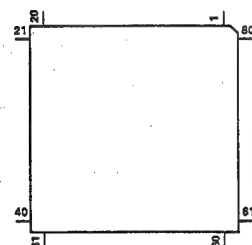
| Pin No. | Pin Name | I/O | I/O Format | Function and Operation             |
|---------|----------|-----|------------|------------------------------------|
| 66      | VDT      | O   | C          | Data output for electronic volume  |
| 67      | VCK      | O   | C          | Clock output for electronic volume |
| 68      | VDD      |     |            | Power supply                       |
| 69      | X2       |     |            | Crystal oscillator connection pin  |
| 70      | X1       |     |            | Crystal oscillator connection pin  |
| 71      | IC       |     |            | GND                                |
| 72      | XT2      |     |            | Not used                           |
| 73      | TESTIN   | I   |            | Test program mode input            |
| 74      | AVDD     |     |            | A/D converter analog power supply  |
| 75      | AVREF0   |     |            | GND                                |
| 76      | SL       | I   |            | Signal level input                 |
| 77      | SSLEV    | I   |            | SS select level input              |
| 78      | SEL1     | I   |            | Destination sense                  |
| 79      | LEVL     | I   |            | Audio Lch level input              |
| 80      | LEVR     | I   |            | Audio Rch level input              |

| I/O Format | Meaning                                  |
|------------|--|
| C          | C MOS                                    |
| NH         | High resistivity<br>N channel open drain |

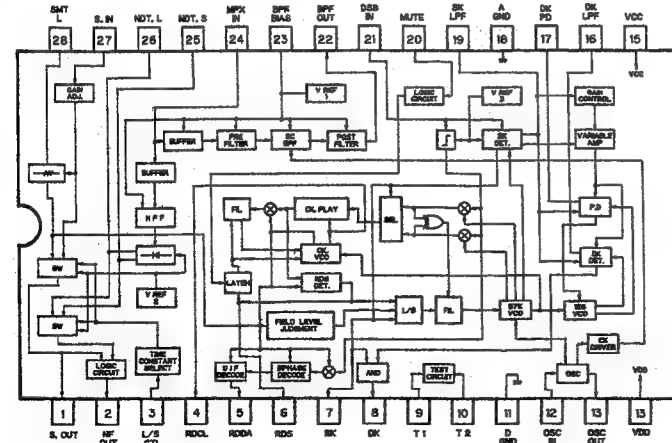
IC's marked by \* are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

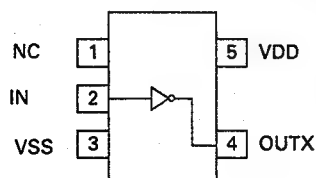
\*PD4557A,PD4561A



PMR001B



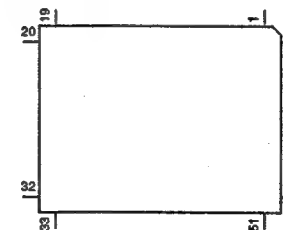
SC14SU69F



## ● Pin Functions(PD6154B)

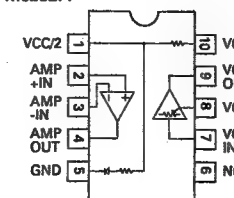
| Pin No. | Pin Name | I/O | I/O Format | Function and Operation                     |
|---------|----------|-----|------------|--|
| 1-3     | NC       |     |            | Not used                                   |
| 4       | GND      |     |            | GND  |
| 5-8     | NC       |     |            | Not used                                   |
| 9-11    | ADD13-15 | O   | N          | ROM address                                |
| 12      | AVCC     |     |            | Analog power supply                        |
| 13      | AVR      |     |            | 5V power supply                            |
| 14      | AVSS     |     |            | GND  |
| 15      | IDSEL    | I   |            | Select input                               |
| 16-19   | NC       |     |            | Not used                                   |
| 20      | RST      | I   |            | Reset input                                |
| 21      | MOD0     |     |            | GND  |
| 22      | MOD1     |     |            | GND  |
| 23      | XIN      | I   |            | Crystal oscillating element connection pin |
| 24      | XOUT     | O   |            | Crystal oscillating element connection pin |
| 25      | VSS      |     |            | GND  |
| 26-29   | NC       |     |            | Not used                                   |
| 30      | WE       | O   | C          | Output enable input                        |
| 31      | ROMEN    | O   | C          | ROM enable                                 |
| 32,33   | ADD17-16 | O   | C          | ROM address output                         |
| 34-41   | ADD7-0   | O   | C          | ROM address output                         |
| 42-49   | DT7-0    | I   |            | ROM data input                             |
| 50      | VSS      |     |            | GND  |
| 51      | TEST     | I   |            | Test terminal                              |
| 52      | IDCLK    | I   |            | Communication clock input                  |
| 53      | IDDT0    | O   | C          | Communication data output                  |
| 54      | IDDT1    | I   |            | Communication data input                   |
| 55      | IDRDY    | O   | C          | Communication ready output                 |
| 56      | TUNSEL   | I   |            | FM/AM tuner unit select input              |
| 57      | VCC      |     |            | 5V   |
| 58      | SDIN     | I   |            | SD signal input                            |
| 59      | NC       |     |            | Not used                                   |
| 60-64   | ADD8-12  | O   | N          | ROM address                                |

\*PD6154B

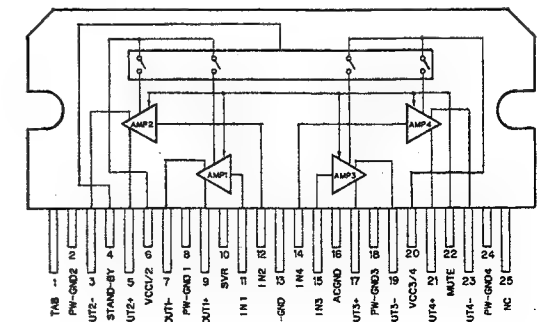


| I/O Format | Meaning              |
|------------|----------------------|
| C          | C MOS                |
| N          | N channel open drain |

M5282FP



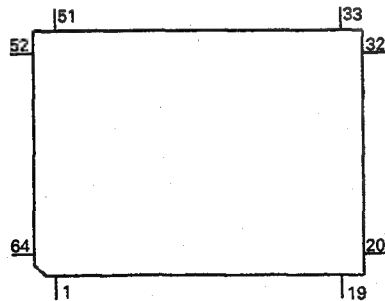
PAL003A



## ● Pin Functions(PD6147A)

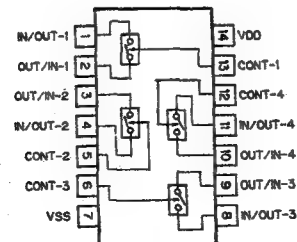
| Pin No. | Pin Name | I/O | I/O Format | Function and Operation                     |
|---------|----------|-----|------------|--|
| 1-3     | NC       |     |            | Not used                                   |
| 4       | SLIN     | I   |            | Signal level input                         |
| 5       | NL       | I   |            | Noise level input                          |
| 6       | FL       | I   |            | Filter mode input                          |
| 7       | DK       | I   |            | DK signal input                            |
| 8       | NCB      | O   | N          | Filter fix output                          |
| 9-11    | NC       |     |            | Not used                                   |
| 12      | AVCC     |     |            | Analog power supply                        |
| 13      | AVR      |     |            | 5V power supply                            |
| 14      | AVSS     |     |            | GND  |
| 15      | RISEL    | I   |            | Select input                               |
| 16      | RCK      | I   |            | RDS demodulation clock input               |
| 17      | RDT      | I   |            | RDS demodulation data input                |
| 18      | RDSLK    | I   |            | RDS LK signal input                        |
| 19      | SK       | I   |            | SK signal input                            |
| 20      | RIRST1   | I   |            | Reset input                                |
| 21      | MOD0     |     |            | GND  |
| 22      | MOD1     |     |            | GND  |
| 23      | XIN      | I   |            | Crystal oscillating element connection pin |
| 24      | XOUT     | O   | C          | Crystal oscillating element connection pin |
| 25      | VSS      |     |            | GND  |
| 26      | DRST     | O   | C          | Decoder reset output                       |
| 27      | LS       |     | C          | Sensitivity of noise level select          |
| 28      | NC       |     |            | Not used                                   |
| 29      | RECIVE   | O   | C          | During RDS data reception output           |
| 30-49   | NC       |     |            | Not used                                   |
| 50      | VSS      |     |            | GND  |
| 51      | RITEST   | I   |            | Test terminal                              |
| 52      | RICK     | I   |            | Communication clock input                  |
| 53      | RIDI     | O   | C          | Communication data output                  |
| 54      | RIDO     | I   |            | Communication data input                   |
| 55      | RIRDY    | O   | C          | Communication ready output                 |
| 56      | CNTSEL   |     |            | GND  |
| 57      | VCC      |     |            | 5V   |
| 58      | SD       | I   |            | SD signal input                            |
| 59      | MOSENS   | I   |            | Modulation detect input                    |
| 60-64   | NC       |     |            | Not used                                   |

\*PD6147A

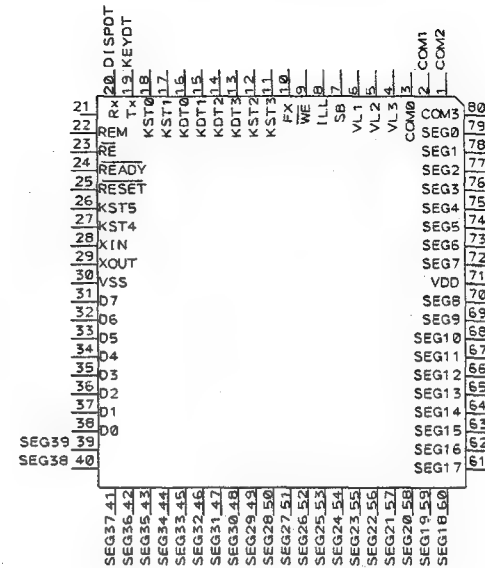


| I/O Format | Meaning              |
|------------|----------------------|
| C          | C MOS                |
| N          | N channel open drain |

BU4066BCFV



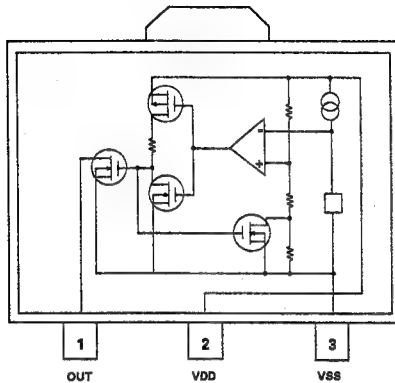
PD5273A



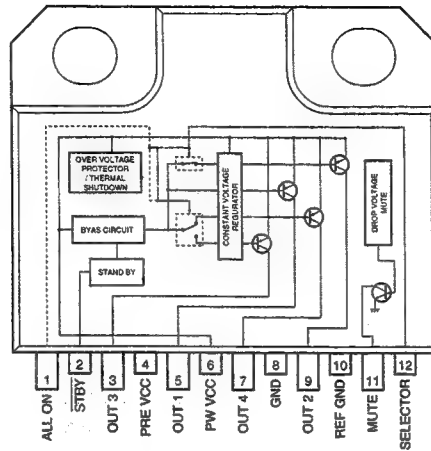
HD61602RH



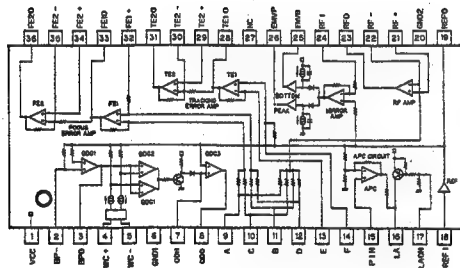
S-80732ANDWI



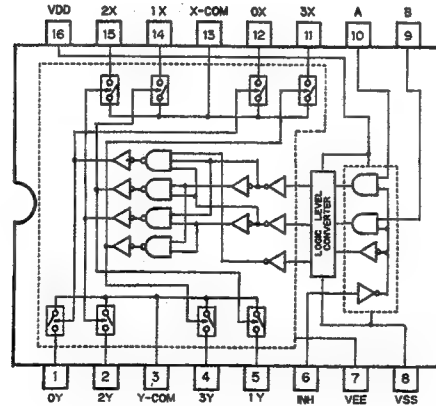
PA2024A



UPC2571GS



BU4052BCFV



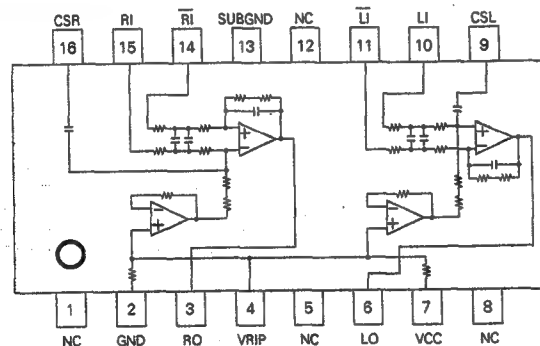
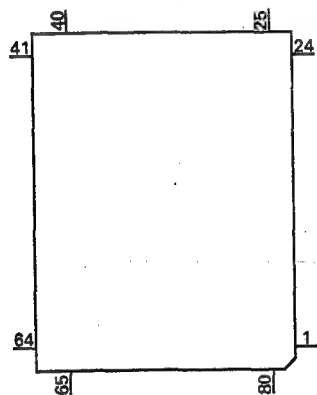
## ● Pin Functions(UPD63700GF1)

| Pin No. | Pin Name  | I/O | Function and Operation  |
|---------|-----------|-----|---|
| 1       | D.GND     |     | Logic circuit GND   |
| 2       | RFOK      | O   | RFOK detection signal output terminal   |
| 3       | MIRR      | O   | MIRR detection signal output terminal   |
| 4       | TBC       | I   | Tracking filter bank switching terminal   |
| 5       | HOLD      | I   | Hold control signal input terminal  |
| 6       | D.VDD     |     | VDD for logic circuit   |
| 7       | RST       | I   | System reset  |
| 8       | AO        | I   | Control signal distinguishing data from microcomputer                                       |
| 9       | STB       | I   | Signal latching serial data inside LSI  |
| 10      | SCK       | I   | Clock input terminal for serial data input and output                                       |
| 11      | SO        | O   | Serial data and status signal output  |
| 12      | SI        | I   | Serial data input   |
| 13      | TM2       | I   | Double speed playback control terminal  |
| 14      | D.GND     |     | Logic circuit GND   |
| 15      | TEST      | I   | Test terminal   |
| 16      | STBY      | I   | Stand-by input terminal   |
| 17      | CTLV      | I   | Control terminal for clock generation VCO used by digital PLL in double speed playback mode |
| 18      | POUT      | O   | Output terminal for phase comparison between EFM signal and bit clock                       |
| 19      | D.GND     |     | Logic circuit GND   |
| 20      | VCO       | I   | Inverter input  |
| 21      | VCO       | O   | Inverter output   |
| 22      | D.VDD     |     | VDD for logic circuit   |
| 23      | PLCK      | O   | Bit clock monitor terminal  |
| 24      | LOCK      | O   | "H" when synchronization signal and frame counter output coincide at EFM demodulator        |
| 25      | WFCK      | O   | Signal issuing one-frame period by bit clock dividing signal                                |
| 26      | RFCK      | O   | Oscillation clock divider signal, output pin for signal giving 1-frame sync.                |
| 27      | C4M       | O   | Output terminal for signal having four the frequency of LRCK                                |
| 28      | C16M      | O   | Oscillation clock output terminal   |
| 29      | D.GND     |     | Logic circuit GND   |
| 30      | XTAL      | I   | Oscillation continuation terminal   |
| 31      | XTAL      | O   | Oscillation continuation terminal   |
| 32      | D.VDD     |     | VDD for logic circuit   |
| 33      | SCKO      | O   | Clock output terminal for audio serial data   |
| 34      | LRCK      | O   | Signal distinguishing between left and right channel DOUT terminal output                   |
| 35      | DOUT      | O   | Serial audio data output terminal   |
| 36      | TX        | O   | Digital audio interface data output terminal  |
| 37      | FLAG      | O   | Flag signal indicating that the current audio data output of incorrectable data             |
| 38      | EMPH      | O   | Emphasis information output   |
| 39      | WDCK      | O   | Output terminal for signal having double the frequency of LRCK                              |
| 40      | C2D3      | O   | Output terminal indicating C2 error correction status                                       |
| 41      | SFSY      | O   | Signal indicating subcode one-frame synchronization   |
| 42      | SBSY      | O   | Signal indicating head of subcode block   |
| 43      | SBSO      | O   | Subcode data output terminal  |
| 44      | SBCK      | I   | Subcode data read clock input terminal  |
| 45      | D.GND     |     | Logic circuit GND   |
| 46,47   | C1D1,C1D2 | O   | Output terminal indicating C1 error correction status                                       |
| 48,49   | C2D1,C2D2 | O   | Output terminal indicating C2 error correction status                                       |
| 50      | T4        | I   | Selects between focus and tracking modulation mode  |
| 51      | T5        | I   | Selects motor PWM input mode  |
| 52      | T6        | I   | Sets focus PWM input mode   |
| 53      | T7        | I   | Sets tracking PWM input mode  |
| 54      | D.VDD     |     | VDD for logic circuit   |
| 55      | MRD       | O   | PWM negative output terminal for the spindle loop filter                                    |
| 56      | MFD       | O   | PWM positive output terminal for the spindle loop filter                                    |
| 57      | SRD       | O   | PWM negative output terminal for the thread loop filter                                     |
| 58      | SFD       | O   | PWM positive output terminal for the thread loop filter                                     |

| Pin No. | Pin Name | I/O | Function and Operation                                    |
|---------|----------|-----|---|
| 59      | D.GND    |     | Logic circuit GND   |
| 60      | TRD      | O   | PWM negative output terminal for the tracking loop filter |
| 61      | TFD      | O   | PWM positive output terminal for the tracking loop filter |
| 62      | FRD      | O   | PWM negative output terminal for the focus loop filter    |
| 63      | FFD      | O   | PWM positive output terminal for the focus loop filter    |
| 64      | D.VDD    |     | VDD for logic circuit                                     |
| 65      | OUTSEL   | I   | Sets PWM output mode for the motor system                 |
| 66      | TEC1     | I   | Tracking error input terminal                             |
| 67      | TEC0     | I   | Tracking error input terminal                             |
| 68      | A.VDD    |     | VDD for analog circuit                                    |
| 69,70   | VR2,VR1  | I   | A/D converter input                                       |
| 71      | TE       | I   | Tracking error input terminal                             |
| 72      | FE       | I   | Focus error input terminal                                |
| 73      | RFB      | I   | RFB signal input terminal                                 |
| 74      | RFP      | I   | RFP signal input terminal                                 |
| 75      | A.GND    |     | Analog circuit GND  |
| 76      | REFOUT   | O   | A/D converter midpoint voltage output terminal inside LSI |
| 77      | RFI      | I   | RF signal input terminal for EFM comparator               |
| 78      | ASI      | I   | Level comparing input for RF signal comparison            |
| 79      | EFM      | O   | EFM signal output terminal                                |
| 80      | A.VDD    |     | VDD for analog circuit                                    |

\*UPD63700GF1

TA2063F

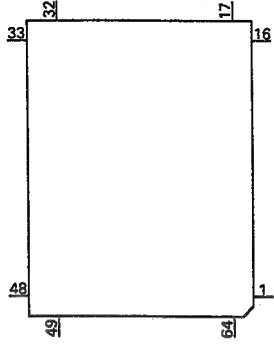


## ● Pin Functions(PD4571A)

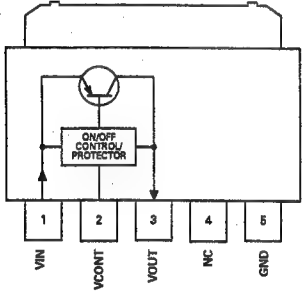
| Pin No. | Pin Name | I/O | I/O Format | Function and Operation                                |
|---------|----------|-----|------------|---|
| 1       | NC       |     |            | Not used  |
| 2       | XRST     | O   | C          | CD LSI reset output                                   |
| 3-5     | CBNK2-0  | O   | C          | DSP bank for compressor set up output                 |
| 6       | DRST     | O   | C          | DSP bank for compressor reset output                  |
| 7       | HOME     | I   |            | Home position detector input                          |
| 8       | CLAMP    | I   |            | Disc clamp sense input                                |
| 9       | VSS      |     |            | GND   |
| 10      | LATCH    | O   | C          | Latch output  |
| 11      | EJECT    | O   | C          | Eject key output pin                                  |
| 12      | LOAD     | O   | C          | Loading motor LOAD control                            |
| 13      | CONT     | O   | C          | Servo driver power supply control                     |
| 14      | NC       |     |            | Not used  |
| 15      | CDMUTE   | O   | C          | CD mute output  |
| 16      | NC       |     |            | Not used  |
| 17      | ADENA    | O   | C          | A/D reference voltage output                          |
| 18-23   | NC       |     |            | Not used  |
| 24      | VSS      |     |            | GND   |
| 25      | NC       |     |            | Not used  |
| 26      | BMUTE    | O   | C          | Bus mute output                                       |
| 27-30   | NC       |     |            | Not used  |
| 31      | BRXEN    | I/O | C          | Reception enable input/output                         |
| 32      | BSRQ     | O   | C          | P-BUS serial pole request output                      |
| 33      | VDCONT   | O   | C          | VD control output                                     |
| 34      | CD5VON   | O   | C          | CD +5V power supply control output                    |
| 35      | RESET    | I   |            | Reset input   |
| 36      | TXARI    | I   |            | Set up of TX output select input                      |
| 37      | CSENS    | I   |            | Flap close sense input                                |
| 38      | BRST     | I   |            | Reset input   |
| 39      | COMP     | I   |            | Compression select input                              |
| 40      | VDD      |     |            | Power supply  |
| 41      | X2       |     |            | Crystal oscillator connection pin                     |
| 42      | X1       | I   |            | Crystal oscillator connection pin                     |
| 43      | VSS      |     |            | GND   |
| 44      | NC       |     |            | Not used  |
| 45      | TESTIN   | I   |            | Test program start input                              |
| 46      | VSS      |     |            | A/D GND   |
| 47      | TEMP     |     |            | Temperature detector                                  |
| 48      | VDSSENS  |     |            | Over voltage sense                                    |
| 49      | EJTD     |     |            | Disc elect position sense                             |
| 50      | DINC     |     |            | Disc insert sense                                     |
| 51      | NC       |     |            | Not used  |
| 52      | FOK      | I   |            | FOK signal input                                      |
| 53      | MIRR     | I   |            | Mirror detector input                                 |
| 54      | LOCK     | I   |            | Spindle lock detector input                           |
| 55      | AVDD     |     |            | A/D analog power supply                               |
| 56      | AVREF    | I   |            | A/D converter reference voltage                       |
| 57      | XSI      | I   |            | LSI data input  |
| 58      | XSO      | O   | C          | LSI data output                                       |
| 59      | XSCCK    | O   | C          | LSI clock output                                      |
| 60      | XSTB     | O   | C          | CD LSI strobe output                                  |
| 61      | XAO      | O   | C          | Control signal distinguishing data from microcomputer |
| 62      | VSS      |     |            | GND   |
| 63      | B0DATA   | I/O | C          | P-BUS serial data input/output                        |
| 64      | BSCK     | I/O | C          | P-BUS serial clock input/output                       |



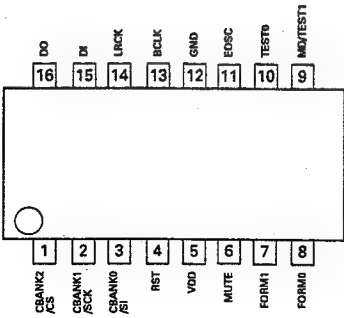
\*PD4571A



PQ05TZ51

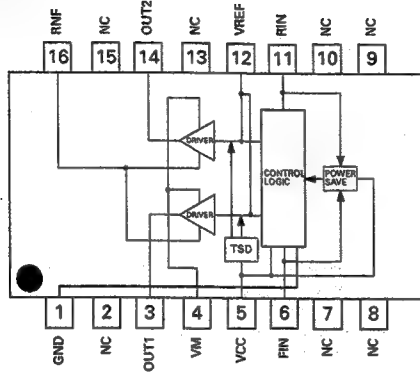


PD4501A



| I/O Format | Meaning |
|------------|---------|
| C          | C MOS   |

XRA6285FP



PD2026BM

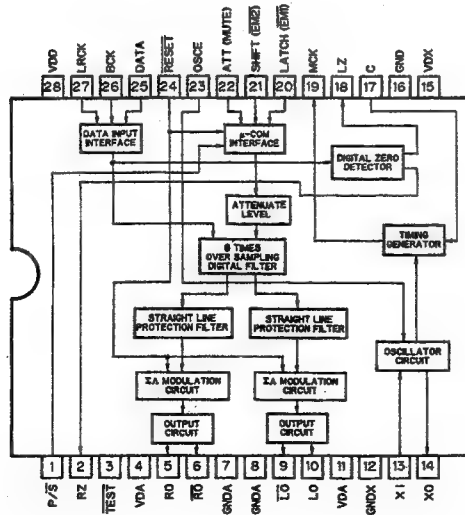
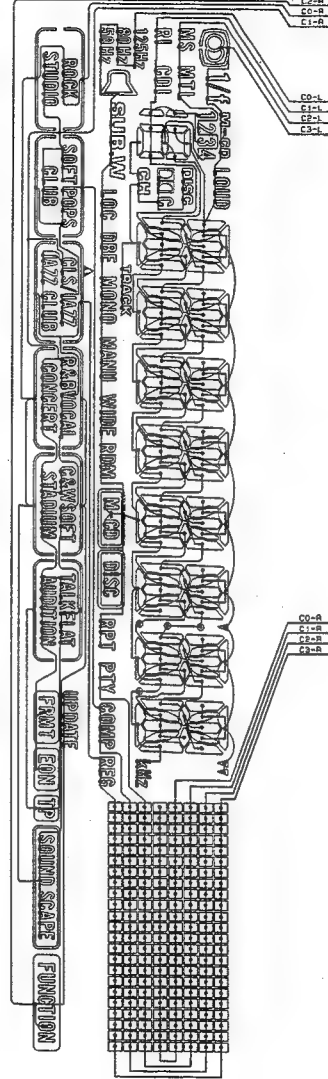


Fig. 15



COMMON

## 5. ELECTRICAL PARTS LIST

**NOTE:**

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

### Chip Resistor

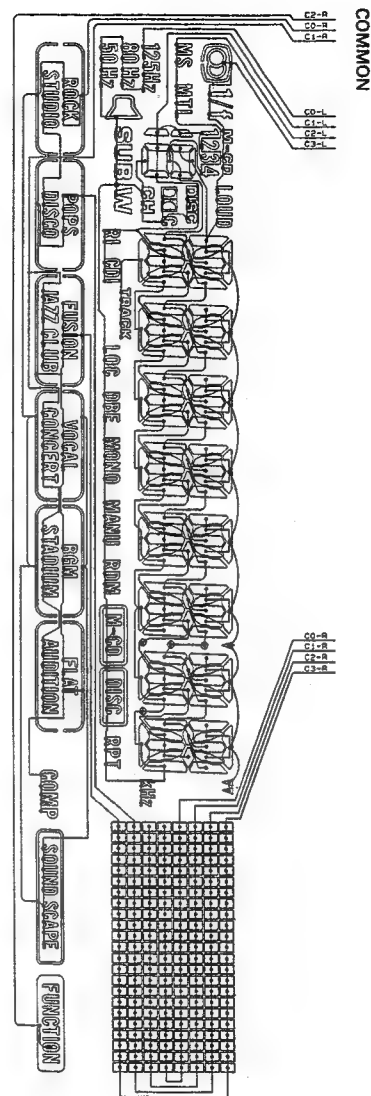
RS1/OSOOOJ,RS1/OOSOOOJ

Chip Capacitor (except for CQS.....)

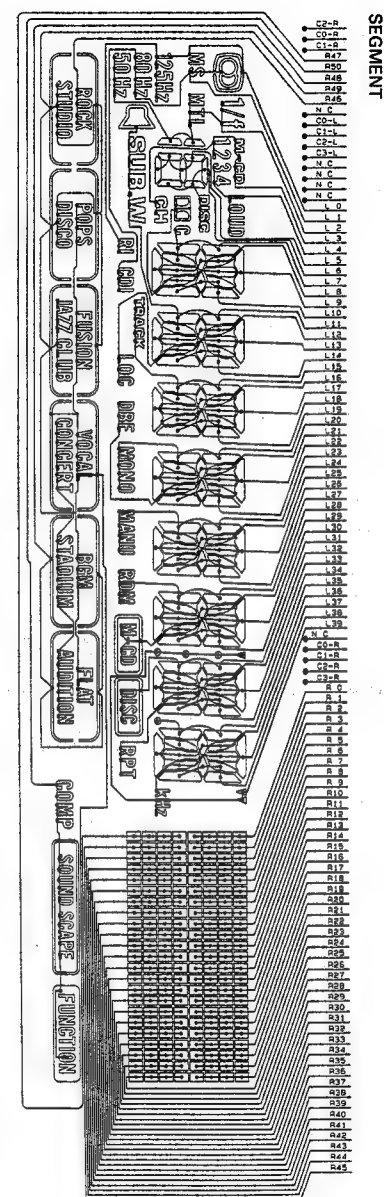
CKS..... CCS..... CSZS.....

| Circuit Symbol & No. Part            | Name               | Part No.     | Circuit Symbol & No. Part  | Name | Part No.     |
|--------------------------------------|--------------------|--------------|----------------------------|------|--------------|
| Unit Number : CWX1720                |                    |              | R 1304                     |      | RS1/16S123J  |
| Unit Name : Control Unit             |                    |              | R 1305 1306                |      | RS1/16S332J  |
|                                      |                    |              | R 1308                     |      | RS1/16S163J  |
|                                      |                    |              | R 1309 1610                |      | RS1/16S103J  |
| MISCELLANEOUS                        |                    |              | R 1317 1727                |      | RS1/16S473J  |
| IC 1001                              |                    | UPC2571GS    | R 1601                     |      | RS1/16S301J  |
| IC 1201                              |                    | UPD63700GF1  | R 1603                     |      | RS1/16S0R0J  |
| IC 1301                              |                    | PA3026       | R 1606 1607                |      | RS1/16S223J  |
| IC 1302                              |                    | XRA6285FP    | R 1608                     |      | RS1/16S162J  |
| IC 1303                              |                    | NJM4558M     | R 1609                     |      | RS1/16S162J  |
| IC 1601                              |                    | PD2028BM     | R 1703 1704 1715 1718      |      | RS1/16S222J  |
| IC 1603                              |                    | TA2063F      | R 1706                     |      | RS1/16S303J  |
| IC 1603                              |                    | PD4501A      | R 1707 1708                |      | RS1/16S333J  |
| IC 1701                              |                    | PD4571A      | R 1709                     |      | RS1/16S122J  |
| IC 1902                              |                    | PQ05TZ51     | R 1710                     |      | RS1/16S472J  |
| Q 1001                               |                    | 2SB1132      | R 1716 1717                |      | RS1/16S104J  |
| Q 1601 1602                          |                    | 2SD1781K     | R 1720 1723                |      | RS1/16S681J  |
| Q 1603                               |                    | 2SB709A      | R 1721 1722 1724           |      | RS1/16S681J  |
| Q 1701                               |                    | UN2111       | R 1801 1802                |      | RS1/8S821J   |
| D 1601                               |                    | MA151WA-MN   |                            |      |              |
| D 1801 1802                          | Chip LED           | CL2001RX     | CAPACITORS                 |      |              |
| D 1901 1902 1903 1904                |                    | SC016-2      | C 1001 1008 1010 1011 1303 |      | CKSRYB102K50 |
| L 1601                               | Inductor           | LCTBR39K2125 | C 1002 1904                |      | CEV101M6R3   |
| TH1701                               | Thermistor         | CCX1015      | C 1003 1609 1617 1618 1703 |      | CKSQYB104K18 |
| X 1601                               | Crystal Resonator  | CSS1067      | C 1004                     |      | CEV470M6R3   |
|                                      |                    |              | C 1006                     |      | CCSRCH101J50 |
| X 1701                               | Radiator           | CSS1354      | C 1008 1023                |      | CKSRYB561K50 |
| S 1801 1802                          | Switch             | CSN1028      | C 1007 1902                |      | CKSYB334K16  |
| VR1001                               | Semi-fixed2.2kΩ(B) | CCP1177      | C 1009                     |      | CCSRCH181J50 |
| VR1002                               | Semi-fixed22kΩ(B)  | CCP1183      | C 1013                     |      | CKSRYB103K50 |
| VR1003                               | Semi-fixed47kΩ(B)  | CCP1185      | C 1014                     |      | CCSRCH220J50 |
| VR1004                               | Semi-fixed47kΩ(B)  | CCP1185      |                            |      |              |
|                                      | Checker Chip       | CKF1031      | C 1015 1016 1017 1018      |      | CKSYF105Z16  |
|                                      |                    |              | C 1021                     |      | CKSYB104K50  |
| RESISTORS                            |                    |              | C 1022                     |      | CKSRYB332K50 |
| R 1001                               |                    | RS1/8S100J   | C 1201 1202                |      | CKSYF105Z16  |
| R 1002                               |                    | RS1/8S120J   | C 1203                     |      | CKSRYB102K50 |
| R 1003 1201 1307 1702                |                    | RS1/16S103J  | C 1301 1302                |      | CKSRYF683Z25 |
| R 1004 1024 1025 1315 1318 1804 1719 |                    | RS1/16S102J  | C 1304                     |      | CKSRYB152K50 |
| R 1006                               |                    | RS1/16S823J  | C 1305                     |      | CKSRYB271K50 |
|                                      |                    |              | C 1307 1308 1619 1620      |      | CKSRYB103K50 |
| R 1006                               |                    | RS1/16S182J  | C 1309 1311                |      | CEV101M10    |
| R 1007                               |                    | RS1/16S333J  |                            |      |              |
| R 1011 1012                          |                    | RS1/16S683J  | C 1310 1608 1616 1621      |      | CKSRYB103K50 |
| R 1013 1311 1606                     |                    | RS1/16S102J  | C 1601                     |      | CCSRCH151J50 |
| R 1014 1310 1725                     |                    | RS1/16S473J  | C 1602                     |      | CCSRCH100D50 |
|                                      |                    |              | C 1603 1604 1903           |      | CKSYB224K16  |
| R 1018 1020                          |                    | RS1/16S822J  | C 1606 1607                |      | CCSRCH120J50 |
| R 1019                               |                    | RS1/16S563J  |                            |      |              |
| R 1021                               |                    | RS1/16S133J  | C 1612                     |      | CEV220M6R3   |
| R 1022                               |                    | RS1/16S133J  | C 1613 1614                |      | CEV47M1M35   |
| R 1026                               |                    | RS1/16S102J  | C 1704                     |      | CKSRYB472K50 |
|                                      |                    |              | C 1901                     |      | CEV220M16    |
| R 1027                               |                    | RS1/16S183J  |                            |      |              |
| R 1028                               |                    | RS1/16S822J  |                            |      |              |
| R 1029                               |                    | RS1/16S0R0J  |                            |      |              |
| R 1301 1302                          |                    | RS1/16S222J  |                            |      |              |
| R 1303                               |                    | RS1/16S223J  |                            |      |              |

Fig. 15



**COMMON**



## SEGMENT

● LCD (CAW1283) (DEH-P813/ES)

| ====Circuit Symbol & No. Part Name=====   | Part No.       |
|---|----------------|
| Unit Number : CWX1791(DEH-P815/UC)        |                |
| Unit Name : Tuner Amp Unit                |                |
| MISCELLANEOUS                             |                |
| IC 401                                    | TA2050S        |
| IC 402                                    | PA0051AM       |
| IC 451                                    | SN761025DL     |
| IC 452 802 804 854 855 856 857            | NJM4558MD      |
| IC 501                                    | LC72140M       |
| IC 551                                    | PAL003A        |
| IC 601                                    | PD4567A        |
| IC 701                                    | PD6154B        |
| IC 705                                    | PD4565A        |
| IC 801                                    | M5282FP        |
| IC 803                                    | BU4052BCFV     |
| IC 851 852 853                            | BU4066BCFV     |
| IC 921                                    | PML001A        |
| IC 961                                    | S-80732ANDWI   |
| IC 971                                    | PA2024A        |
| Q 401 602 881 981                         | DTA124EK       |
| Q 402 862 889 941                         | 2SA1182        |
| Q 403 859                                 | DTC124EK       |
| Q 404 551 552 601 860 862 982             | DTC124EK       |
| Q 405 406                                 | DTC343TK       |
| Q 407                                     | DTA114TK       |
| Q 423 424 503 641 667 851 852 853 854 951 | 2SC2712        |
| Q 501                                     | 2SC3096        |
| Q 502 661 670                             | 2SC3295        |
| Q 504 506 642 863 865                     | 2SC2712        |
| Q 505 507                                 | 2SK208         |
| Q 664 911                                 | 2SD1760F5      |
| Q 666                                     | 2SB1238        |
| Q 668                                     | 2SD1864        |
| Q 801 802 855 856 857 858                 | DTC314TK       |
| Q 952 991                                 | 2SC2712        |
| Q 983                                     | 2SD2396        |
| D 401 851 852                             | MA151WA-MN     |
| D 423 424                                 | MA151K-MH      |
| D 426 801                                 | MA151WA-MN     |
| D 501 502                                 | MA3027H        |
| D 504 681 941 971                         | MA151WK-MT     |
| D 641                                     | MA716          |
| D 642                                     | MA716          |
| D 643 644 961 991                         | MA151K-MH      |
| D 662 665 667 668                         | MA153-MC       |
| D 663                                     | MA3082L        |
| D 664                                     | MA3047M        |
| D 665                                     | MA3062MH       |
| D 901 902 911 921 922                     | ERA15-02VH     |
| D 912                                     | HZS9L3         |
| D 951                                     | MA3082L        |
| D 952                                     | MA3075H        |
| D 981                                     | RB100AVH       |
| D 983                                     | HZS9L3         |
| L 481 501 601 602                         | Ferri-Inductor |
| L 502                                     | Ferri-Inductor |
| L 503                                     | Coil           |
| L 661                                     | Transformer    |
| L 662 703 941                             | Ferri-Inductor |
| L 701                                     | Ferri-Inductor |
| L 851 852 853 854                         | Inductor       |
| TC 601                                    | Trimmer        |
| X 501                                     | Crystal        |
| X 601                                     | Radiator       |

| ====Circuit Symbol & No. Part Name=====   | Part No.      |
|---|---------------|
| X 701                                     | Radiator      |
| S 851                                     | Switch        |
| E 961                                     | Switch        |
| IL 661                                    | Lamp 14V 40mA |
| EF 901                                    | EMI Filter    |
| BZ 601                                    | Tuner Unit    |
| RESISTORS                                 |               |
| R 399 400 405 406 414 433 434 517 519 520 | RS1/16S102J   |
| R 401 402 489 470 501                     | RS1/16S101J   |
| R 403                                     | RS1/16S620J   |
| R 404 418 441 442 507 513 526 527 644 678 | RS1/16S222J   |
| R 407 408 429 430 533 534 540 541 603 614 | RS1/16S473J   |
| R 409 413 435 436 508 642 677 819 820 887 | RS1/16S223J   |
| R 410 473 474 475 516 542 666 804 891 892 | RS1/16S472J   |
| R 411 532 544 671 851 852 853 854 942     | RS1/16S472J   |
| R 412                                     | RS1/16S181J   |
| R 415                                     | RS1/16S102J   |
| R 416 641                                 | RS1/16S223J   |
| R 417                                     | RS1/16S181J   |
| R 419 420                                 | RS1/16S333J   |
| II 431 432 627                            | RS1/16S683J   |
| II 437                                    | RS1/16S183J   |
| R 438 650                                 | RS1/16S273J   |
| R 439 440                                 | RS1/16S753J   |
| R 453 454                                 | RS1/16S912J   |
| R 455 672 801 802 803 855 856 857 858 899 | RS1/16S103J   |
| R 456 471 472 510 515 559 560 562 617 661 | RS1/16S103J   |
| R 457 458                                 | RS1/16S153J   |
| R 465                                     | RS1/16S272J   |
| R 466                                     | RS1/16S272J   |
| R 467 468                                 | RS1/16S151J   |
| R 502                                     | RS1/16S332J   |
| R 503 561                                 | RS1/16S331J   |
| R 504                                     | RS1/16S330J   |
| R 505 817 818 879 880 881 882             | RS1/16S821J   |
| R 506                                     | RS1/16S680J   |
| R 509 604 606 608 610 612                 | RS1/16S221J   |
| R 512 529 536 537 538 539 643             | RS1/16S222J   |
| R 514                                     | RS1/16S0R0J   |
| R 518                                     | RS1/16S152J   |
| R 521 522 523 524 528 543 615 616 752 753 | RS1/16S102J   |
| R 531 625 635                             | RS1/16S473J   |
| R 535                                     | RS1/16S0R0J   |
| R 547 705                                 | RS1/16S0R0J   |
| R 601 602 613 628 806 807 808 809 810 811 | RS1/16S104J   |
| R 605 607 609 611                         | RS1/16S682J   |
| R 618 620 621 622 623 624 629 630 631 632 | RS1/16S473J   |
| R 619                                     | RS1/16S223J   |
| R 626                                     | RS1/16S471J   |
| R 633 663 665 707 712 713 714 715 716 748 | RS1/16S473J   |
| R 645 646                                 | RS1/16S154J   |
| R 647 648 863 864 865 866                 | RS1/16S224J   |
| R 649                                     | RS1/16S273J   |
| R 662 685                                 | RS1/16S224J   |
| R 664 805                                 | RS1/16S103J   |
| R 667                                     | RS2P100JL     |
| R 668                                     | RD1/4PS681JL  |
| R 669 682                                 | RS1/16S222J   |
| R 670                                     | RS1/2S681J    |
| R 673                                     | RS1/16S204J   |
| R 674                                     | RS1/16S104J   |
| R 675                                     | RS1/10S241J   |

| ====Circuit Symbol & No. Part Name=====   | Part No.      |
|---|---------------|
| R 676                                     | RS1/10S512J   |
| R 679                                     | RS1/8S222J    |
| II 680 681                                | RS1/8S472J    |
| R 683 684                                 | RS1/10S472J   |
| R 703 704 708 709 710 711                 | RS1/16S681J   |
| R 749 750 751 894                         | RS1/16S473J   |
| R 754 755 756 757 758 759 760 761 762 763 | RS1/16S102J   |
| R 764 765 766 767 768 769 770 771 772 773 | RS1/16S102J   |
| R 774 775 776 777 778 779 844 862 872     | RS1/16S473J   |
| R 780                                     | RS1/16S473J   |
| R 812                                     | RS1/16S105J   |
| R 813 814                                 | RS1/16S103J   |
| R 815 816                                 | RS1/16S273J   |
| R 821 822 823 824                         | RS1/16S473J   |
| R 825                                     | RS1/16S104J   |
| R 859 860 861 862                         | RS1/16S513J   |
| R 867 868                                 | RS1/16S223J   |
| R 869 870                                 | RS1/16S223J   |
| R 871 873                                 | RS1/16S104J   |
| R 872 874 971                             | RS1/16S104J   |
| R 875 876 878                             | RS1/16S913J   |
| R 877                                     | RS1/16S913J   |
| R 888 889 890                             | RS1/16S223J   |
| R 893                                     | RS1/10S220J   |
| R 895 898                                 | RS1/16S184J   |
| R 896 897                                 | RS1/16S184J   |
| R 911                                     | RS1/10S101J   |
| R 912                                     | RS1/10S103J   |
| R 921                                     | RS1/10S103J   |
| R 941                                     | RS1/10S183J   |
| R 943 973 974                             | RS1/16S472J   |
| R 952 955 962                             | RS1/10S473J   |
| R 953 956 961                             | RS1/10S223J   |
| R 961                                     | RS1/16S124J   |
| R 981                                     | RD1/4PS221JL  |
| R 983                                     | RS1/10S221J   |
| CAPACITORS                                |               |
| C 401 456 483 489 490 491 492 493 573 645 | CKSQYB104K16  |
| C 402 403                                 | CKSQYB102K50  |
| C 404 407 411 412 457 458 463 464 477 478 | CEA100M16LL   |
| C 405 406 408 409 431 432 433 434 453 454 | CEA010M50LL   |
| C 429 430 480 961                         | CEA2R2M50LL   |
| C 435                                     | CKSQYB183K25  |
| C 451 452 484 485 519 601                 | CEA4R7M35LL   |
| C 455 913 972 974                         | CEA470M10LL   |
| C 459 460                                 | CKSQYB822K50  |
| C 461 462 572 872 873 874 875 876 877 878 | CEA010M50LL   |
| C 465 466                                 | CKSQYB152K50  |
| C 467 468 805                             | CKSQYB183K25  |
| C 469 470                                 | CKSQYB102K50  |
| C 471 472                                 | CEA2R2M35NPLL |
| C 473 474 503 504 509 510 602 647 648 665 | CCSQCH101J50  |
| C 475 476                                 | CKSQYB333K50  |
| C 479 481 482 664 725 813 814 859 860 861 | CEA100M16LL   |
| C 487 488 801                             | CCSQCH220J50  |
| C 501 505 511 514 517 524 661 701 708 715 | CKSQYB103K25  |
| C 502                                     | CCSQCH881J50  |
| C 507 808                                 | CKSQYB223K50  |
| C 508                                     | CKSQYB223K50  |
| C 512                                     | CCG1008       |
| C 513                                     | CCH1165       |
| C 516                                     | CFTNA474J50   |
| C 520                                     | CCSQCH560J50  |
| C 521                                     | CKSQYB103K25  |
| C 522                                     | CKSQYB103K25  |
| C 523                                     | CKSYB224K16   |
| C 525 526                                 | CCSQCH270J50  |

| ====Circuit Symbol & No. Part Name===== | Part No.      |
|---|---------------|
| C 551 552 553 554                       | CKSQYB224K16  |
| C 567                                   | CEAS220M16    |
| C 568                                   | CEAS010M50    |
| C 569                                   | CEA330M16LL   |
| II 570 911                              | CCH1149       |
| C 571                                   | 3300μF/16V    |
| C 603 804                               | CCH1150       |
| C 605                                   | CCSQCH330J50  |
| C 606                                   | CCSQCH101J50  |
| C 607 608                               | CKSQYB102K50  |
| C 609 810                               | CKSQYB102K50  |
| C 611                                   | CKSQYB103K25  |
| C 641 642 648                           | CKSQYB104K16  |
| C 643 644                               | CKSYB224K16   |
| C 662 667                               | CEAS221M10    |
| C 663 807 982                           | CKSQYB473K16  |
| C 666                                   | CCSQCH101J50  |
| C 702                                   | CKSQYB104K16  |
| C 727                                   | CKSQYB102K50  |
| C 802 803                               | CEA100M10NPLL |
| C 804 811 812                           | CCSQCH220J50  |
| C 806                                   | CKSQYB273K50  |
| C 809                                   | CKSQYB153K50  |
| C 810 818 869 870                       | CKSQYB103K25  |
| C 815 816 863 864 865 866               | CCSQCH221J50  |
| C 817                                   | CEA220M10LL   |
| C 819                                   | CKSQYB224K16  |
| C 861 862 854                           | CCSQCH220J50  |
| C 863                                   | CCSQCH220J50  |
| C 855 856 857 858                       | CEA010M50LL   |
| C 862                                   | CEA100M16LL   |
| C 867 868 912 991                       | CKSQYB103K25  |
| C 871 973                               | CEA010M10LL   |
| C 879                                   | CEA010M50LL   |
| C 901                                   | CKSQYB104K16  |
| C 921                                   | CKSQYB473K16  |
| C 971                                   | 470μF/16V     |
| C 975                                   | 330μF/10V     |
| C 981                                   | CCH1181       |
| II 983                                  | CEAS331M16    |
|   | CKSQYB104K16  |

Unit Number : CWX1790(DEH-P815RDS/EV)  
Unit Name : Tuner Amp Unit

## MISCELLANEOUS

|   |              |
|---|--------------|
| IC 401  | TA2050S      |
| IC 402  | PA0051AM     |
| IC 451  | SN761025DL   |
| IC 452 802 804 854 855 856 857                    | NJM4558MD    |
| IC 501  | LC72140M     |
| IC 551  | PAL003A      |
| IC 601  | PD4561A      |
| IC 701  | PD6147A      |
| IC 702  | PML001B      |
| IC 703  | SC145U69F    |
| IC 704  | NJM2903M     |
| IC 801  | M5282FP      |
| IC 803  | BU4052BCFV   |
| IC 851 852 853                                    | BU4066BCFV   |
| IC 921  | PML001A      |
| IC 961  | S-80732ANDWI |
| IC 971  | PA2024A      |
| Q 401 802 881 981                                 | DTA124EK     |
| Q 402 862 869 707 941                             | 2SA1162      |
| Q 403 508 702 859                                 | DTC124EK     |
| Q 404 425 551 552 601 708 860 862 982             | DTC124EK     |
| Q 405 406   | DTC343TK     |
| Q 407   | DTA114TK     |
| Q 421 422   | DTC343TK     |
| Q 423 424 503 641 667 703 706 851 852 853 2SC2712 | 2SC2712      |

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| ====Circuit Symbol & No. Part Name=====   | Part No.       | ====Circuit Symbol & No. Part Name===== | Part No.     | ====Circuit Symbol & No. Part Name===== | Part No.      | ====Circuit Symbol & No. Part Name===== | Part No.          |              |
|---|----------------|---|--------------|---|---------------|---|-------------------|--------------|
| D 664                                     | MA3047M        | R 619                                   | RS1/16S223J  | C 475 476                               | CKSQYB333K50  | □ 903 904 905 906                       | Chip LED          | CL170FGCD    |
| □ 665                                     | MA3062MH       | R 628                                   | RS1/16S471J  | C 479 481 482 664 813 814 859 860 861   | CEA100M16LL   | D 907 908 909 910                       | Chip LED          | CL170FGCD    |
| D 901 902 911 921 922                     | ERA16S-02VH    | R 630 663 665                           | RS1/16S473J  | C 487 488 801                           | CCSQCH220J50  | D 911 912 913 914                       | Chip LED          | CL170FGCD    |
| D 912                                     | HZS6L81        | R 645 646                               | RS1/16S154J  | C 501 505 511 514 517 524 528 661       | CKSQYB103K25  | D 915 916 917 918                       | Chip LED          | CL170FGCD    |
| D 951                                     | MA3082L        | R 647 648 863 864 865 866               | RS1/16S224J  | C 502                                   | CCSQCH681J50  | D 919 920 921 922                       | Chip LED          | CL170FGCD    |
| D 952                                     | MA3075H        | R 649                                   | RS1/16S273J  | C 507 808                               | CKSQYB223K50  | D 923 924                               | Chip LED          | CL170FGCD    |
| D 981                                     | RB100AVH       | R 662 685                               | RS1/16S224J  | C 508                                   | CKSQYB223K50  | D 928                                   |                   | MA151K-MH    |
| D 983                                     | HZS9LC3        | R 664 805                               | RS1/16S103J  | C 512                                   | CCG1008       | L 901                                   | Inductor          | LCTA4R7K4532 |
| L 461 501 601 802                         | LAU2R2K        | R 667                                   | RS2P100JL    | C 513                                   | CCH1165       | L 902 903                               | Inductor          | LCTB2R2K2125 |
| L 502                                     | CTF-157        | R 668                                   | RD1/4PS681JL | C 516                                   | CFTNA474J50   | X 901                                   | Ceramic Resonator | CSS1084      |
| L 503                                     | Coil           | R 669 682                               | RS1/10S222J  | C 520                                   | CCSQCH560J50  | S 901 906 907 912                       | Switch            | CSG1043      |
| L 661                                     | Transformer    | R 670                                   | RS1/2S681J   | C 521                                   | CKSQYB103K25  | S 902 903 904 905                       | Switch            | CSG1041      |
| L 662 941                                 | Ferri-Inductor | R 673                                   | RS1/16S204J  | C 522                                   | CKSQYB103K25  | S 906 909 910 911                       | Switch            | CSG1041      |
| L 851 852 863 864                         | Inductor       | R 674                                   | RS1/16S104J  | C 523                                   | CKSYB224K16   | S 913 918 920 921                       | Switch            | CSG1043      |
| TC 601                                    | Trimmer        | R 675                                   | RS1/10S241J  | C 525 526                               | CCSQCH270J50  | S 914 915 916 917                       | Switch            | CSG1041      |
| X 501                                     | Crystal        | R 676                                   | RS1/10S512J  | C 551 552 553 554                       | CKSQYB224K16  | S 919                                   | Switch            | CSG1043      |
| X 801                                     | Radiator       | R 679                                   | RS1/8S222J   | C 567                                   | CEAS220M16    | S 930                                   | Switch            | CSN1027      |
| S 851                                     | Switch         | R 680 681                               | RS1/8S472J   | C 568                                   | CEAS010M50    |   | EL                | CL1424       |
| S 961                                     | Switch         | R 683 684                               | RS1/10S472J  | C 569                                   | CEA330M16LL   | LCD901                                  | LCD (UC,EW)       | CAW1261      |
| IL 661                                    | Lamp 14V 40mA  | R 812                                   | RS1/16S105J  | C 570 911                               | CCH1149       | LCD901                                  | LCD (ES)          | CAW1283      |
| EF 901                                    | EMI Filter     | R 813 814                               | RS1/16S103J  | C 571                                   | 3300μF/16V    |   |                   |              |
| BZ 601                                    | Tuner Unit     | R 815 816                               | RS1/16S273J  | C 603 604                               |               |   |                   |              |
|   |                | R 821 822 823 824                       | RS1/16S473J  | C 605                                   |               |   |                   |              |
|   |                | R 825                                   | RS1/16S104J  | C 606                                   |               |   |                   |              |
|   |                | R 859 860 861 862                       | RS1/16S513J  | C 607 608                               |               |   |                   |              |
| RESISTORS                                 |                | R 867 868                               | RS1/16S223J  | C 609 610                               |               |   |                   |              |
| R 399 400 405 406 414 433 434 517 519 520 | RS1/16S102J    | R 869 870                               | RS1/16S223J  | C 611                                   | CKSQYB102K50  |   |                   |              |
| R 401 402 469 470 501                     | RS1/16S101J    | R 871 873                               | RS1/16S104J  | C 641 642 646                           | CKSQYB104K16  |   |                   |              |
| R 403                                     | RS1/16S620J    | R 872 874 971                           | RS1/16S104J  | C 643 644                               | CKSYB224K16   |   |                   |              |
| R 404 418 441 442 507 513 526 527 844 878 | RS1/16S222J    | R 875 876 878                           | RS1/16S913J  | C 662 667                               | CEAS221M10    |   |                   |              |
| R 407 408 429 430 533 534 540 541 603 614 | RS1/16S473J    |   |              |   |               |   |                   |              |
| R 409 413 435 436 508 642 677 819 820 887 | RS1/16S223J    | R 877                                   | RS1/16S913J  | C 663 807 982                           | CKSQYB473K16  |   |                   |              |
| R 410 473 474 475 516 542 666 804 891 892 | RS1/16S472J    | R 888 889 890                           | RS1/16S223J  | C 666                                   | CCSQCH101J50  |   |                   |              |
| R 411 532 544 671 851 852 853 854 942     | RS1/16S472J    | R 893                                   | RS1/10S220J  | C 802 803                               | CEA100M10NPLL |   |                   |              |
| R 412                                     | RS1/16S181J    | R 894                                   | RS1/16S473J  | C 804 811 812                           | CCSQCH220J50  |   |                   |              |
| R 415                                     | RS1/16S102J    | R 895 898                               | RS1/16S184J  | C 806                                   | CKSQYB273K50  |   |                   |              |
| R 416 641                                 | RS1/16S223J    | R 896 897                               | RS1/16S184J  | C 809                                   | CKSQYB153K50  |   |                   |              |
| R 417                                     | RS1/16S181J    | R 911                                   | RS1/10S101J  | C 810 818 869 870                       | CKSQYB103K25  |   |                   |              |
| R 419 420                                 | RS1/16S333J    | R 912                                   | RS1/10S103J  | C 815 816 863 864 865 866               | CCSQCH221J50  |   |                   |              |
| R 431 432 627                             | RS1/16S683J    | R 921                                   | RS1/10S103J  | C 817                                   | CEA220M10LL   |   |                   |              |
| R 437                                     | RS1/16S183J    | R 941                                   | RS1/10S183J  | C 819                                   | CKSQYB224K16  |   |                   |              |
| R 438 650                                 | RS1/16S273J    | R 943 973 974                           | RS1/16S472J  | C 851 852 854                           | CCSQCH222J50  |   |                   |              |
| R 439 440                                 | RS1/16S763J    | R 944 962 972                           | RS1/16S102J  | C 853                                   | CCSQCH220J50  |   |                   |              |
| R 453 454                                 | RS1/16S912J    | R 952 955 992                           | RS1/10S473J  | C 855 856 857 858                       | CEA010M50LL   |   |                   |              |
| R 455 672 801 802 803 855 856 857 858 899 | RS1/16S103J    | R 953 956 991                           | RS1/10S223J  | C 862                                   | CEA100M16LL   |   |                   |              |
| R 456 471 472 510 515 559 560 582 617 661 | RS1/16S103J    | R 961                                   | RS1/16S124J  | C 867 868 912 991                       | CKSQYB103K25  |   |                   |              |
| R 457 458                                 | RS1/16S183J    | R 961                                   | RD1/4PS221JL |   |               |   |                   |              |
| R 465                                     | RS1/16S272J    | R 963                                   | RS1/10S221J  |   |               |   |                   |              |
| R 466                                     | RS1/16S272J    |   |              |   |               |   |                   |              |
| R 467 468                                 | RS1/16S151J    |   |              |   |               |   |                   |              |
| R 502                                     | RS1/16S332J    |   |              |   |               |   |                   |              |
| R 503 561                                 | RS1/16S331J    |   |              |   |               |   |                   |              |
| R 504                                     | RS1/16S330J    |   |              |   |               |   |                   |              |
| R 505 817 818 879 880 881 882             | RS1/16S21J     |   |              |   |               |   |                   |              |
| R 506                                     | RS1/16S680J    |   |              |   |               |   |                   |              |
| R 509 604 606 608 810 812                 | RS1/16S221J    |   |              |   |               |   |                   |              |
| R 512 529 536 537 538 539 546 643         | RS1/16S222J    |   |              |   |               |   |                   |              |
| R 514                                     | RS1/16S0R0J    |   |              |   |               |   |                   |              |
| R 518                                     | RS1/16S162J    |   |              |   |               |   |                   |              |
| R 521 522 523 524 528 543 615 616         | RS1/16S102J    |   |              |   |               |   |                   |              |
| R 531 625 634                             | RS1/16S473J    |   |              |   |               |   |                   |              |
| R 535                                     | RS1/16S0R0J    |   |              |   |               |   |                   |              |
| R 545                                     | RS1/16S0R0J    |   |              |   |               |   |                   |              |
| R 605 607 609 611                         | RS1/16S682J    |   |              |   |               |   |                   |              |
| R 613 806 807 808 809 810 811             | RS1/16S104J    |   |              |   |               |   |                   |              |
| R 618 620 621 622 623 624 632             | RS1/16S473J    |   |              |   |               |   |                   |              |
| R 619                                     | RS1/16S223J    |   |              |   |               |   |                   |              |
| R 628                                     | RS1/16S471J    |   |              |   |               |   |                   |              |
| R 630 663 665                             | RS1/16S473J    |   |              |   |               |   |                   |              |
| R 645 646                                 | RS1/16S154J    |   |              |   |               |   |                   |              |
| R 647 648 863 864 865 866                 | RS1/16S224J    |   |              |   |               |   |                   |              |
| R 649                                     | RS1/16S273J    |   |              |   |               |   |                   |              |
| R 662 685                                 | RS1/16S224J    |   |              |   |               |   |                   |              |
| R 664 805                                 | RS1/16S103J    |   |              |   |               |   |                   |              |
| R 667                                     | RS2P100JL      |   |              |   |               |   |                   |              |
| R 668                                     | RD1/4PS681JL   |   |              |   |               |   |                   |              |
| R 669 682                                 | RS1/10S222J    |   |              |   |               |   |                   |              |
| R 670                                     | RS1/2S681J     |   |              |   |               |   |                   |              |
| R 673                                     | RS1/16S204J    |   |              |   |               |   |                   |              |
| R 674                                     | RS1/16S104J    |   |              |   |               |   |                   |              |
| R 675                                     | RS1/10S241J    |   |              |   |               |   |                   |              |
| R 676                                     | RS1/10S512J    |   |              |   |               |   |                   |              |
| R 679                                     | RS1/8S222J     |   |              |   |               |   |                   |              |
| R 680 681                                 | RS1/8S472J     |   |              |   |               |   |                   |              |
| R 683 684                                 | RS1/10S472J    |   |              |   |               |   |                   |              |
| R 812                                     | RS1/16S105J    |   |              |   |               |   |                   |              |
| R 813 814                                 | RS1/16S103J    |   |              |   |               |   |                   |              |
| R 815 816                                 | RS1/16S273J    |   |              |   |               |   |                   |              |
| R 821 822 823 824                         | RS1/16S473J    |   |              |   |               |   |                   |              |
| R 825                                     | RS1/16S104J    |   |              |   |               |   |                   |              |
| R 859 860 861 862                         | RS1/16S513J    |   |              |   |               |   |                   |              |
| R 867 868                                 | RS1/16S223J    |   |              |   |               |   |                   |              |
| R 869 870                                 | RS1/16S223J    |   |              |   |               |   |                   |              |
| R 871 873                                 | RS1/16S104J    |   |              |   |               |   |                   |              |
| R 872 874 971                             | RS1/16S104J    |   |              |   |               |   |                   |              |
| R 875 876 878                             | RS1/16S913J    |   |              |   |               |   |                   |              |
| R 877                                     | RS1/16S913J    |   |              |   |               |   |                   |              |
| R 888 889 890                             | RS1/16S223J    |   |              |   |               |   |                   |              |
| R 893                                     | RS1/10S220J    |   |              |   |               |   |                   |              |
| R 894                                     | RS1/16S473J    |   |              |   |               |   |                   |              |
| R 895 898                                 | RS1/16S184J    |   |              |   |               |   |                   |              |
| R 896 897                                 | RS1/16S184J    |   |              |   |               |   |                   |              |
| R 911                                     | RS1/10S101J    |   |              |   |               |   |                   |              |
| R 912                                     | RS1/10S103J    |   |              |   |               |   |                   |              |
| R 921                                     | RS1/10S103J    |   |              |   |               |   |                   |              |
| R 941                                     | RS1/10S183J    |   |              |   |               |   |                   |              |
| R 943 973 974                             | RS1/16S472J    |   |              |   |               |   |                   |              |
| R 944 962 972                             | RS1/16S102J    |   |              |   |               |   |                   |              |
| R 952 955 992                             | RS1/10S473J    |   |              |   |               |   |                   |              |
| R 953 956 991                             | RS1/10S223J    |   |              |   |               |   |                   |              |
| R 961                                     | RS1/16S124J    |   |              |   |               |   |                   |              |
| R 961                                     | RD1/4PS221JL   |   |              |   |               |   |                   |              |
| R 963                                     | RS1/10S221J    |   |              |   |               |   |                   |              |
| CAPACITORS                                |                |   |              |   |               |   |                   |              |
| C 401 456 483 489 490 491 492 493 573 645 | CKSQYB104K16   |   |              |   |               |   |                   |              |
| C 402 403                                 | CKSQYB102K50   |   |              |   |               |   |                   |              |
| C 404 407 411 412 457 458 463 464 477 478 | CEA100M16LL    |   |              |   |               |   |                   |              |
| C 405 406 408 409 431 432 433 434 453 454 | CEA010M50LL    |   |              |   |               |   |                   |              |
| C 429 430 480 961                         | CEA2R2M50LL    |   |              |   |               |   |                   |              |
| C 435                                     | CKSQYB183K25   |   |              |   |               |   |                   |              |
| C 451 452 484 485 519 601                 | CEA4R7M35LL    |   |              |   |               |   |                   |              |
| C 455 913 972 974                         | CEA470M10LL    |   |              |   |               |   |                   |              |
| C 459 480                                 | CKSQYB822K50   |   |              |   |               |   |                   |              |
| C 461 462 572 872 873 874 875 876 877 878 | CEA010M50LL    |   |              |   |               |   |                   |              |
| C 466 466                                 | CKSQYB152K50   |   |              |   |               |   |                   |              |
| C 467 468 805                             | CKSQYB183K25   |   |              |   |               |   |                   |              |
| C 469 470 527                             | CKSQYB102K50   |   |              |   |               |   |                   |              |
| C 471 472                                 | CEA2R2M35NPLL  |   |              |   |               |   |                   |              |
| C 473 474 503 504 509 510 602 647 648 665 | CCSQCH101J50   |   |              |   |               |   |                   |              |
| C 475 476                                 | CKSQYB333K50   |   |              |   |               |   |                   |              |
| C 479 481 482 664 813 814 859 860 861     | CEA100M16LL    |   |              |   |               |   |                   |              |
| C 487 488 801                             | CCSQCH220J50   |   |              |   |               |   |                   |              |
| C 501 505 511 514 517 524 528 661         | CKSQYB103K25   |   |              |   |               |   |                   |              |
| C 502                                     | CCSQCH681J50   |   |              |   |               |   |                   |              |
| C 507 808                                 | CKSQYB223K50   |   |              |   |               |   |                   |              |
| C 508                                     | CKSQYB223K50   |   |              |   |               |   |                   |              |
| C 512                                     | CCG1008        |   |              |   |               |   |                   |              |
| C 513                                     | CCH1165        |   |              |   |               |   |                   |              |
| C 516                                     | CFTNA474J50    |   |              |   |               |   |                   |              |
| C 520                                     | CCSQCH560J50   |   |              |   |               |   |                   |              |
| C 521                                     | CKSQYB103K25   |   |              |   |               |   |                   |              |
| C 522                                     | CKSQYB103K25   |   |              |   |               |   |                   |              |
| C 523                                     | CKSYB224K16    |   |              |   |               |   |                   |              |
| C 525 526                                 | CCSQCH270J50   |   |              |   |               |   |                   |              |
| C 551 552 553 554                         | CKSQYB224K16   |   |              |   |               |   |                   |              |
| C 567                                     | CEAS220M16     |   |              |   |               |   |                   |              |
| C 568                                     | CEAS010M50     |   |              |   |               |   |                   |              |
| C 569                                     | CEA330M16LL    |   |              |   |               |   |                   |              |
| C 570 911                                 | CCH1149        |   |              |   |               |   |                   |              |
| C 571                                     | 3300μF/16V     |   |              |   |               |   |                   |              |
| C 603 604                                 |                |   |              |   |               |   |                   |              |
| C 605                                     |                |   |              |   |               |   |                   |              |
| C 606                                     |                |   |              |   |               |   |                   |              |
| C 607 608                                 |                |   |              |   |               |   |                   |              |
| C 609 610                                 |                |   |              |   |               |   |                   |              |
| C 611                                     | CKSQYB102K50   |   |              |   |               |   |                   |              |
| C 641 642 646                             | CKSQYB104K16   |   |              |   |               |   |                   |              |
| C 643 644                                 | CKSYB224K16    |   |              |   |               |   |                   |              |
| C 662 667                                 | CEAS221M10     |   |              |   |               |   |                   |              |



====Circuit Symbol &amp; No. Part Name====

Part No.

|                        |                    |                |
|------------------------|--------------------|----------------|
| L 1                    | Inductor           | LCTB12K2125    |
| L 2 51 52              | Inductor           | LCTA150K3225   |
| L 4                    | Coil               | CTC1068        |
| L 71 72                | Inductor           | LCTB3R9K2125   |
| L 201                  | Inductor           | CTF1197        |
| L 202                  | Coil               | CTB1105        |
| L 204                  | Inductor           | LCTB101K2125   |
| L 205                  | Inductor           | LCTA330K3225   |
| L 206                  | Inductor           | CTF1198        |
| T 1                    | Coil               | CTC1099        |
| T 2                    | Coil               | CTE1084        |
| T 3                    | Coil               | CTE1098        |
| T 51                   | Coil               | CTE1087        |
| T 52                   | Coil               | CTE1068        |
| T 71                   | Coil               | CTE1068        |
| T 202                  | Coil               | CTB1104        |
| T 203                  | Coil               | CTE1106        |
| T 204                  | Coil               | CTE1107        |
| T 205                  | Coil               | CTE1110        |
| TH 71                  | Thermistor         | DTN-T202V221KS |
| CF 1 51 52             | Ceramic Filter     | CTF-182        |
| CF 201                 | Filter             | CTF1027        |
| CF 202                 | Ceramic Filter     | CTF1321        |
| X 151                  | Radiator           | CSS1314        |
| X 201                  | Radiator           | CSS1339        |
| VR 51 152 166          | Semi-fixed 47kΩ(B) | CCP1185        |
| VR 52                  | Semi-fixed 22kΩ(B) | CCP1183        |
| AR 1                   |                    | DSP-141N       |
| RESISTORS              |                    |                |
| R 1 3 10 113 114       |                    | RS1/16S223J    |
| R 2                    |                    | RS1/16S271J    |
| R 5                    |                    | RS1/16S163J    |
| R 6                    |                    | RS1/16S820J    |
| R 7 13                 |                    | RS1/16S563J    |
| R 9 59 66              |                    | RS1/16S473J    |
| R 11                   |                    | RS1/16S474J    |
| R 14 15 18 217         |                    | RS1/16S583J    |
| R 21                   |                    | RS1/16S221J    |
| R 22                   |                    | RS1/16S560J    |
| R 25                   |                    | RS1/16S273J    |
| R 26                   |                    | RS1/16S152J    |
| R 27                   |                    | RS1/16S223J    |
| R 30 168               |                    | RS1/16S183J    |
| R 31                   |                    | RS1/16S181J    |
| R 41 42 75 156 165 216 |                    | RS1/16S103J    |
| R 43 74                |                    | RS1/16S153J    |
| R 44                   |                    | RS1/16S0R0J    |
| R 45 76 79             |                    | RS1/16S331J    |
| R 48                   |                    | RS1/16S473J    |
| R 50                   |                    | RS1/16S121J    |
| R 54 209 222           |                    | RS1/16S822J    |
| R 55                   |                    | RS1/16S331J    |
| R 56 57 201            |                    | RS1/16S822J    |
| R 58                   |                    | RS1/16S203J    |
| R 63                   |                    | RS1/16S334J    |
| R 67                   |                    | RS1/16S123J    |
| R 68                   |                    | RS1/16S881J    |
| R 69                   |                    | RS1/16S331J    |
| R 70                   |                    | RS1/16S0R0J    |
| R 71                   |                    | RS1/16S471J    |
| R 72 77 80 101 213     |                    | RS1/16S222J    |
| R 73                   |                    | RS1/16S222J    |
| R 78                   |                    | RS1/16S391J    |
| R 102                  |                    | RS1/16S105J    |

====Circuit Symbol &amp; No. Part Name====

Part No.

|                                 |  |              |
|---------------------------------|--|--------------|
| R 103 155                       |  | RS1/16S104J  |
| R 104                           |  | RS1/16S472J  |
| R 112                           |  | RS1/16S102J  |
| R 153 245                       |  | RS1/16S562J  |
| R 154                           |  | RS1/16S103J  |
| R 157                           |  | RS1/16S104J  |
| R 158                           |  | RS1/16S104J  |
| R 159                           |  | RS1/16S103J  |
| R 160                           |  | RS1/16S154J  |
| R 161 166 214                   |  | RS1/16S333J  |
| R 184                           |  | RS1/16S183J  |
| R 187 230                       |  | RS1/16S333J  |
| R 189                           |  | RS1/16S0R0J  |
| R 203                           |  | RS1/16S102J  |
| R 205                           |  | RS1/16S823J  |
| R 207                           |  | RS1/16S225J  |
| R 215                           |  | RS1/16S330J  |
| R 220                           |  | RS1/16S100J  |
| R 221                           |  | RS1/16S273J  |
| R 241                           |  | RS1/16S471J  |
| R 242                           |  | RS1/16S122J  |
| CAPACITORS                      |  |              |
| C 1 2                           |  | CCSRCH220J50 |
| C 3 31 53 72 210 248            |  | CKSRYF473225 |
| C 4                             |  | CCSRT1050D50 |
| C 5                             |  | CCSRCH270J50 |
| C 7                             |  | CCSRCH030C50 |
| C 8 32 241 242                  |  | CKSRYB222K50 |
| C 9                             |  | CCSRCH470J50 |
| C 10                            |  | CCSRSH080D50 |
| C 11 14 19 20 21 22 41 43 51 81 |  | CKSRYB103K50 |
| C 12 13                         |  | CCSRCH070D50 |
| C 15                            |  | CKSRYF104Z25 |
| C 16                            |  | CCSRCH050D50 |
| C 17                            |  | CCSRAR100D50 |
| C 18                            |  | CCSRAR080D50 |
| C 23                            |  | CEV010M50    |
| C 24 163 213                    |  | CKSRYB223K25 |
| C 25 104                        |  | CKSRYB882K50 |
| C 28                            |  | CEV330M10    |
| C 29 65 67 88 89 101            |  | CKSRYB103K50 |
| C 33 34 216                     |  | CCSRCH100D50 |
| C 54                            |  | CCSRCH101J50 |
| C 56                            |  | CCSRPH910J50 |
| C 57                            |  | CCSRPH470J50 |
| C 58                            |  | CKSYB474K18  |
| C 60                            |  | CCSRCH650J50 |
| C 82                            |  | CCSRCH101J50 |
| C 83                            |  | CCSRCH020D50 |
| C 70 105 155 156 201 203 207    |  | CKSRYB103K50 |
| C 71                            |  | CKSRYB103K50 |
| C 102                           |  | CKSYB683K25  |
| C 103                           |  | CKSRYB102K50 |
| C 108                           |  | CEVNP100M10  |
| C 109 233                       |  | CKSRYB332K50 |
| C 110                           |  | CKSRYB332K50 |
| C 113                           |  | CKSRYB223K25 |
| C 157 212 231 234               |  | CEV100M16    |
| C 151 152                       |  | CKSRYB273K18 |
| C 153                           |  | CKSQYB104K16 |
| C 154 158 211                   |  | CKSYB105K16  |
| C 159                           |  | CKSQYB104K18 |
| C 180                           |  | CKSYB473K50  |
| C 161                           |  | CCSRCH221J50 |
| C 162                           |  | CEV010M50    |
| C 165                           |  | CEV010M50    |
| C 204                           |  | CCSRT101J50  |

| ====Circuit Symbol & No. Part Name===== | Part No.     |
|---|--------------|
| C 206                                   | CCSRTH820J50 |
| C 208                                   | CEV470M16    |
| C 209 220 223 225 227 228               | CKSRYP103K50 |
| C 214                                   | CKSRYP153K25 |
| C 215 235                               | CKSRYP103K50 |
| C 218                                   | CEV4R7M35    |
| E 219                                   | CKSQYB473K16 |
| C 221                                   | CCSRCH330J50 |
| C 222                                   | CCSRCH270J50 |
| C 226                                   | CEV4R7M35    |
| C 229                                   | CKSYB684K16  |
| C 230                                   | CKSRYP472K50 |
| C 232                                   | CCSRCH390J50 |
| Unit Number : CWE1356(DEH-P815RDS/EW)   |              |
| Unit Name : Tuner Unit                  |              |
| MISCELLANEOUS                           |              |
| IC 1                                    | PA2021B      |
| IC 51                                   | HA12186F     |
| IC 52                                   | LA1868M-PA   |
| Q 1                                     | 3SK195       |
| Q 2 73                                  | 2SC4099      |
| Q 3 5 6 10 11 51 87 210                 | DTC124EU     |
| Q 20                                    | DTC143TU     |
| Q 41 86 152                             | 2SC4116      |
| Q 71                                    | 2SC4099      |
| Q 72                                    | HN3C01F      |
| Q 83                                    | 2SA1586      |
| Q 84 153 173                            | DTC124EU     |
| Q 85 154                                | 2SC4116      |
| Q 141                                   | IMX1         |
| Q 142                                   | DTA114TU     |
| Q 171                                   | IMX1         |
| Q 172                                   | IMD1         |
| Q 201                                   | FC12(12G)    |
| D 1                                     | 1SV248       |
| D 2 3 4                                 | KV1410-F1    |
| D 8 202                                 | MA157-MR     |
| D 31                                    | 1SV249       |
| D 81 84                                 | HVR320       |
| D 82 83                                 | HVR320       |
| D 86 171                                | MA110-1A     |
| D 151                                   | DT23R6A      |
| D 152                                   | DT23R0A      |
| D 201                                   | MA110-1A     |
| D 203                                   | SVC203CP     |
| L 1                                     | LCTBR12K2125 |
| L 2 51 52                               | LCTA150K3225 |
| L 4                                     | CTC1068      |
| L 71 72                                 | LCTB3R9K2125 |
| L 201                                   | CTF1197      |
| L 202                                   | CTB1105      |
| L 204                                   | LCTB101K2125 |
| L 205                                   | LCTA330K3225 |
| L 206                                   | CTF1198      |
| T 1                                     | CTC1099      |
| T 2                                     | CTE1064      |
| T 3                                     | CTC1130      |
| T 51                                    | CTE1067      |
| T 52                                    | CTE1068      |
| T 71                                    | CTE1058      |
| T 111                                   | CTE1093      |
| T 82                                    | CTE1097      |
| T 85 84                                 | CTE1098      |
| T 85                                    | CTE1094      |
| T 202                                   | CTB1104      |
| T 203                                   | CTE1106      |

| ====Circuit Symbol & No. Part Name===== | Part No.                         |
|---|----------------------------------|
| T 204                                   | Coil                             |
| T 205                                   | Coil                             |
| TC 1                                    | Trimmer                          |
| TH 71                                   | Thermistor                       |
| CF 1 51 52                              | DTN-T202V221KS<br>Ceramic Filter |
| CF 201                                  | Filter                           |
| CF 202                                  | Ceramic Filter                   |
| X 81                                    | Radiator                         |
| X 151                                   | Radiator                         |
| X 201                                   | Radiator                         |
| VR 51 81 152                            | Semi-fixed 47kQ(B)               |
| VR 52                                   | Semi-fixed 22kQ(B)               |
| VR 71                                   | Semi-fixed 2.2kQ(B)              |
| AR 1                                    |                                  |
| RESISTORS                               |                                  |
| R 1 3 10 113 114 131 133 171 172        | RS1/16S223J                      |
| R 2                                     | RS1/16S271J                      |
| R 5 144                                 | RS1/16S153J                      |
| R 6                                     | RS1/16S820J                      |
| R 7 13                                  | RS1/16S563J                      |
| R 9 59 66                               | RS1/16S473J                      |
| R 11                                    | RS1/16S474J                      |
| R 14 15 18 217                          | RS1/16S563J                      |
| R 21                                    | RS1/16S221J                      |
| R 22                                    | RS1/16S560J                      |
| R 25 83 126                             | RS1/16S273J                      |
| R 26 88                                 | RS1/16S162J                      |
| R 27 123 141 149 173 174 177            | RS1/16S223J                      |
| R 30 93 168                             | RS1/16S183J                      |
| R 31                                    | RS1/16S181J                      |
| R 41 42 75 137 138 156 165 216          | RS1/16S103J                      |
| R 43 74 89                              | RS1/16S153J                      |
| R 44 159                                | RS1/16S0R0J                      |
| R 45 78 79                              | RS1/16S331J                      |
| R 48                                    | RS1/16S473J                      |
| R 50                                    | RS1/16S121J                      |
| R 54 209 222                            | RS1/16S822J                      |
| R 55 81                                 | RS1/16S681J                      |
| R 56 57 140 201                         | RS1/16S822J                      |
| R 58                                    | RS1/16S243J                      |
| R 61 166 179 214                        | RS1/16S333J                      |
| R 63                                    | RS1/16S334J                      |
| R 67                                    | RS1/16S123J                      |
| R 68                                    | RS1/16S681J                      |
| R 69                                    | RS1/16S331J                      |
| R 70                                    | RS1/16S0R0J                      |
| R 71                                    | RS1/16S471J                      |
| R 72 77 80 97 101 213                   | RS1/16S222J                      |
| R 73                                    | RS1/16S151J                      |
| R 78 241                                | RS1/16S471J                      |
| R 82 90 122 154                         | RS1/16S103J                      |
| R 84 85                                 | RS1/16S392J                      |
| R 86 87                                 | RS1/16S470J                      |
| R 91                                    | RS1/16S512J                      |
| R 92                                    | RS1/16S152J                      |
| R 94                                    | RS1/16S183J                      |
| R 96                                    | RS1/16S183J                      |
| R 98 139                                | RS1/16S123J                      |
| R 100                                   | RS1/16S182J                      |
| R 102                                   | RS1/16S564J                      |
| R 103 155                               | RS1/16S104J                      |
| R 104 132 136                           | RS1/16S472J                      |
| R 121 142 143                           | RS1/16S102J                      |
| R 124                                   | RS1/16S472J                      |
| R 125                                   | RS1/16S182J                      |

| ====Circuit Symbol & No. Part Name=====  | Part No.     |
|--|--------------|
| R 127 128                                | RS1/16S124J  |
| R 129 146 147                            | RS1/16S683J  |
| R 134                                    | RS1/16S682J  |
| R 135                                    | RS1/16S272J  |
| R 145                                    | RS1/16S562J  |
| R 153 245                                | RS1/16S562J  |
| R 157 176                                | RS1/16S104J  |
| R 158                                    | RS1/16S333J  |
| R 160                                    | RS1/16S105J  |
| R 164                                    | RS1/16S392J  |
| R 167 230                                | RS1/16S333J  |
| R 175                                    | RS1/16S472J  |
| R 178                                    | RS1/16S334J  |
| R 203                                    | RS1/16S102J  |
| R 205                                    | RS1/16S823J  |
| R 207                                    | RS1/16S225J  |
| R 215                                    | RS1/16S150J  |
| R 220                                    | RS1/16S100J  |
| R 221                                    | RS1/16S273J  |
| R 242                                    | RS1/16S122J  |
| CAPACITORS                               |              |
| C 1 2                                    | CCSRCH220J50 |
| C 3 31 55 72 210 248                     | CKSRYP473Z25 |
| C 5                                      | CCSRCH270J60 |
| C 7                                      | CCSRCH030C50 |
| C 8 32 55 241 242                        | CKSRYP222K50 |
| C 9                                      | CCSRCH470J50 |
| C 10                                     | CCSRSH060D50 |
| C 11 14 19 20 21 22 41 43 51 61          | CKSRYP103K50 |
| C 12 13                                  | CCSRCH050D50 |
| C 15 91                                  | CKSRYP104Z25 |
| C 16                                     | CCSRCH050D50 |
| C 17                                     | CCSRRH100D50 |
| C 18                                     | CCSRRH080D50 |
| C 23                                     | CEV010M50    |
| C 24 81 163 213                          | CKSRYP223K25 |
| C 25 104                                 | CKSRYP682K50 |
| C 28                                     | CEV330M10    |
| C 29 65 66 67 68 69 87 96 99 101         | CKSRYP103K50 |
| C 33 34 216                              | CCSRCH100D50 |
| C 54                                     | CCSRCH101J50 |
| C 56                                     | CCSRPH910J50 |
| C 57                                     | CCSRPH470J50 |
| C 58                                     | CKSYB274K16  |
| C 60                                     | CCSRCH560J50 |
| C 62 129 172                             | CCSRCH101J50 |
| C 63                                     | CCSRCH020D50 |
| C 70 105 132 140 155 156 174 201 203 207 | CKSRYP103K50 |
| C 82 98 146 159                          | CKSQYB104K16 |
| C 83                                     | CCSRCH150J50 |
| C 84                                     | CCSRCH070D50 |
| C 85                                     | CKSYB105K16  |
| C 86                                     | CCSRCH100D50 |
| C 88 100                                 | CKSRYP472K50 |
| C 89 92                                  | CCSRRH121J50 |
| C 90                                     | CKSRYP333K16 |
| C 93                                     | CKSRYP333K16 |
| C 95 109 144 233                         | CKSRYP332K50 |
| C 97 121                                 | CCSRRH560J50 |
| C 102                                    | CKSYB474K16  |
| C 103                                    | CKSRYP102K50 |
| C 108                                    | CEVNP100M10  |
| C 110                                    | CCSRCH331J50 |
| C 113                                    | CKSRYP223K25 |
| C 122                                    | CKSQYB683K16 |
| C 123 125 157 212 231 234                | CEV100M16    |

| ====Circuit Symbol & No. Part Name===== | Part No.             |
|---|----------------------|
| C 124 143                               | CKSYB105K16          |
| C 126 147                               | CKSRYP332K50         |
| C 127 131                               | CCSRCH391J50         |
| C 130 136 145 173 175 215 235           | CKSRYP103K50         |
| C 133                                   | CEV100M16            |
| C 134                                   | CKSRYP104Z25         |
| C 137                                   | CKSRYP152K50         |
| C 141 208                               | CEV470M16            |
| C 142                                   | CEV2R2M50            |
| C 151 152                               | CKSRYP183K25         |
| C 153                                   | CKSQYB104K16         |
| C 154 158 211                           | CKSYB105K16          |
| C 160                                   | CKSYB473K50          |
| C 161                                   | CKSRYP471K50         |
| C 165                                   | CEV2R2M50            |
| C 171                                   | CKSRYP681K50         |
| C 176                                   | CKSRYP473Z25         |
| C 177                                   | CKSRYP102K50         |
| C 180                                   | CKSRYP223K25         |
| C 204                                   | CCSRTH101J50         |
| C 206                                   | CCSRTH820J50         |
| C 209 220 223 225 227 228               | CKSRYP103K50         |
| C 214                                   | CKSRYP153K25         |
| C 218                                   | CEV4R7M35            |
| C 219                                   | CKSQYB473K25         |
| C 221                                   | CCSRCH390J50         |
| C 222                                   | CCSRCH270J50         |
| C 226                                   | CEV4R7M35            |
| C 228                                   | CKSYB684K16          |
| C 230                                   | CKSRYP472K50         |
| C 232                                   | CCSRCH390J50         |
| Unit Number :                           |                      |
| Unit Name : Detector P.C.Board          |                      |
| P 1 2                                   | Photo Transistor     |
| Miscellaneous Parts List                |                      |
| M 1                                     | Motor Unit(Spindle)  |
| M 2                                     | Motor Unit(Carriage) |
| M 3                                     | Motor Unit>Loading)  |
|   | PU Unit              |
| CXA7001                                 |                      |
| CXA7150                                 |                      |
| CXA8456                                 |                      |
| CGY1031                                 |                      |

# 7. CIRCUIT DIAGRAM AND PATTERN

## 7.1 TUNER AMP UNIT (DEH-P815/UC)

### ● Connection Diagram

A

B

C

D

TUNER UNIT

CORD

TUNER UNIT

IP-BUS IN

TUNER AMP UNIT

CORD ASSY

ADJ IC, Q

SWITCH P.C. BOARD

CLOSE  
S930

TUNER AMP UNIT  
CN662

### CAUTION

WHEN TESTING A P.C.B. WHICH HAS  
BEEN SEPARATED FROM THE MAIN  
CHASSIS.  
IT IS NECESSARY TO SHORT POINTS  
A, B TOGETHER.

CD MECHANISM  
MODULE  
CN1701

KEY BOARD P.C. BOARD  
CN901

SWITCH P.C. BOARD

|                          |       |
|--------------------------|-------|
| Q505                     | Q502  |
| Q504 Q501                |       |
| Q401 Q951                |       |
| Q503 IC501 IC804 Q801    |       |
| Q423 Q424 Q506 Q402 Q991 |       |
| Q802 IC802               |       |
| IC401 IC801 IC402 IC921  | Q403  |
| IC803 Q952               |       |
| IC971 Q507 Q861          |       |
| Q405                     |       |
| Q855 Q856 Q857 Q858      | Q406  |
| Q407 Q854                |       |
| Q851 IC857 IC551         |       |
| IC854                    |       |
| IC701 IC705              |       |
| IC855 Q852 IC856 Q853    |       |
| Q859                     |       |
| Q602                     |       |
| Q552                     |       |
| IC452 IC851 IC852 IC853  |       |
| Q862 Q860 Q551           |       |
| IC451 Q404 IC961         |       |
| IC601 Q641               |       |
| Q941                     |       |
| Q911 Q664                |       |
| Q983 Q642 Q665           | TC601 |
| Q661                     |       |
| Q981 Q982 Q669 Q663      |       |
| Q667 Q666 Q668           |       |
| Q601 Q670 Q662           |       |

Fig.19

## 6. BLOCK DIAGRAM

● DEH-P815/UC

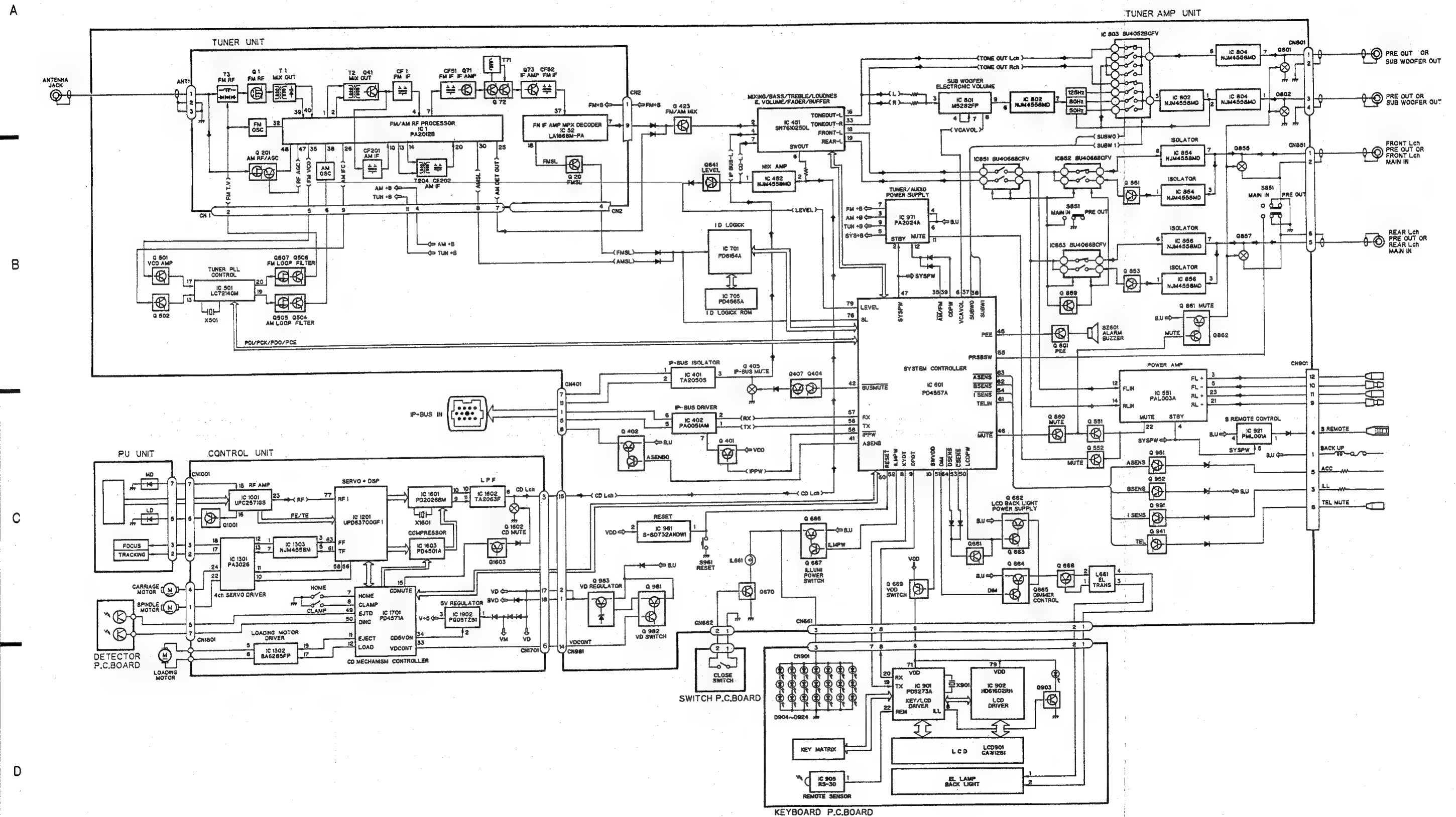


Fig.17

## ● DEH-P815RDS/EW

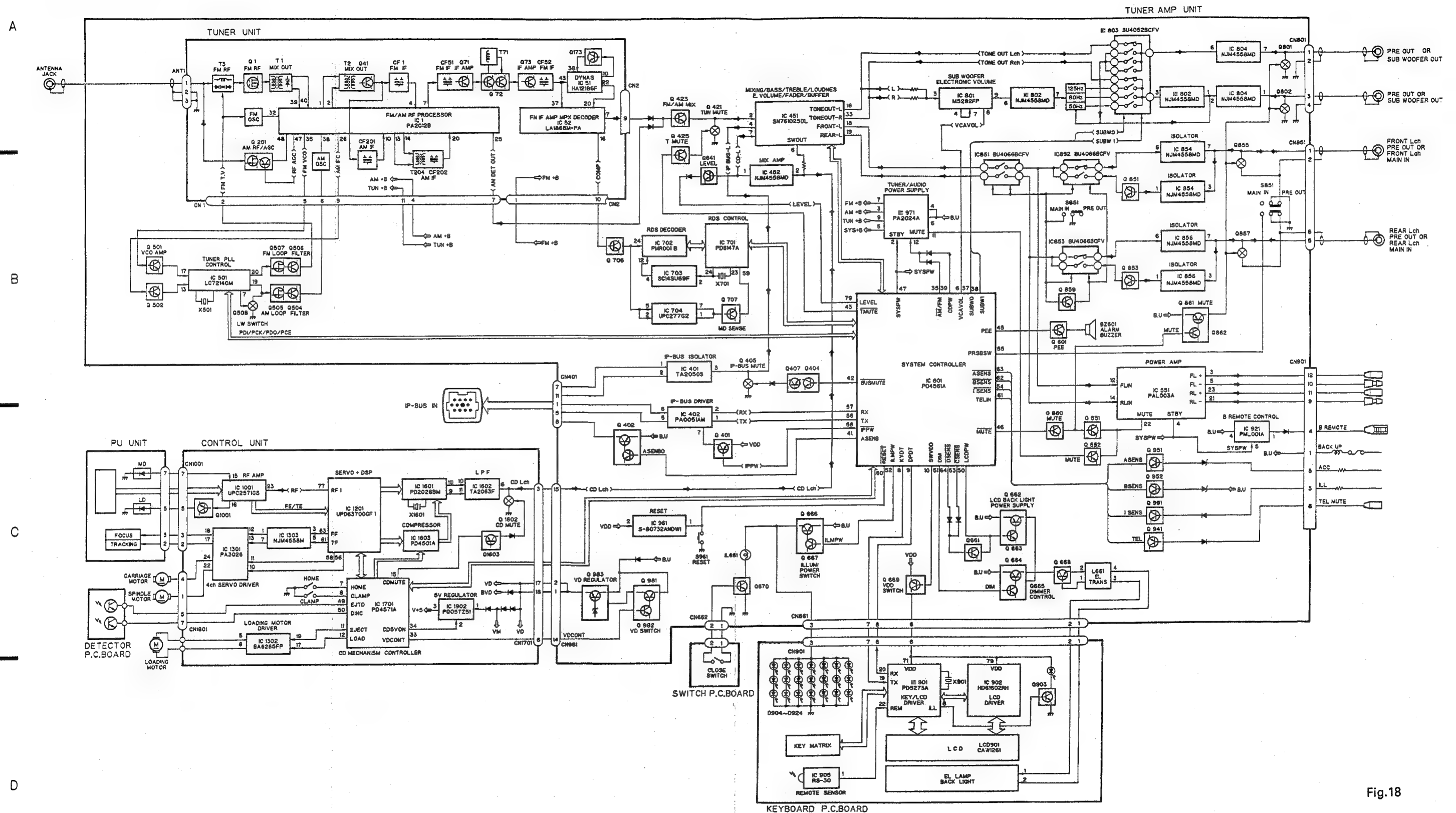
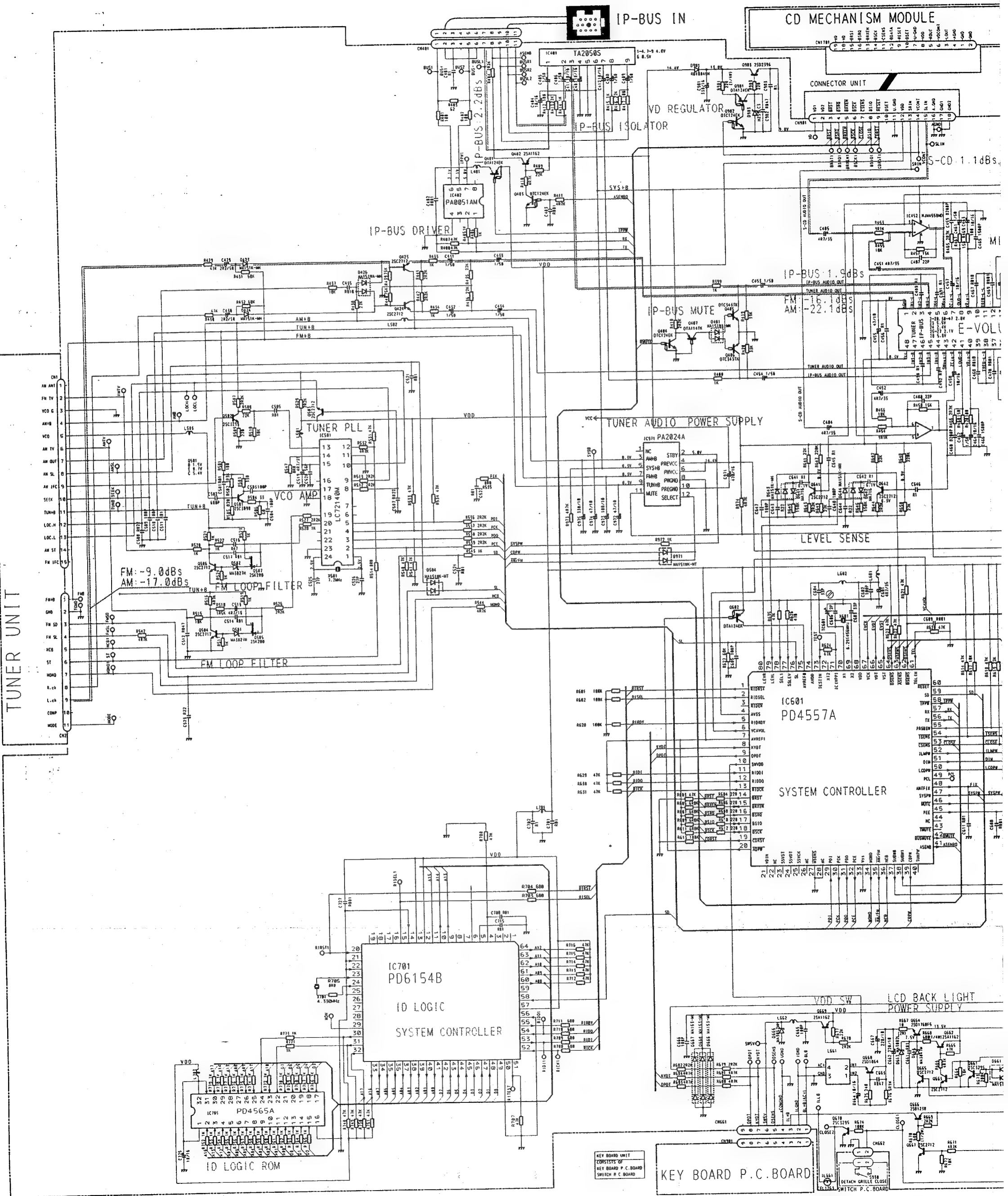


Fig.18





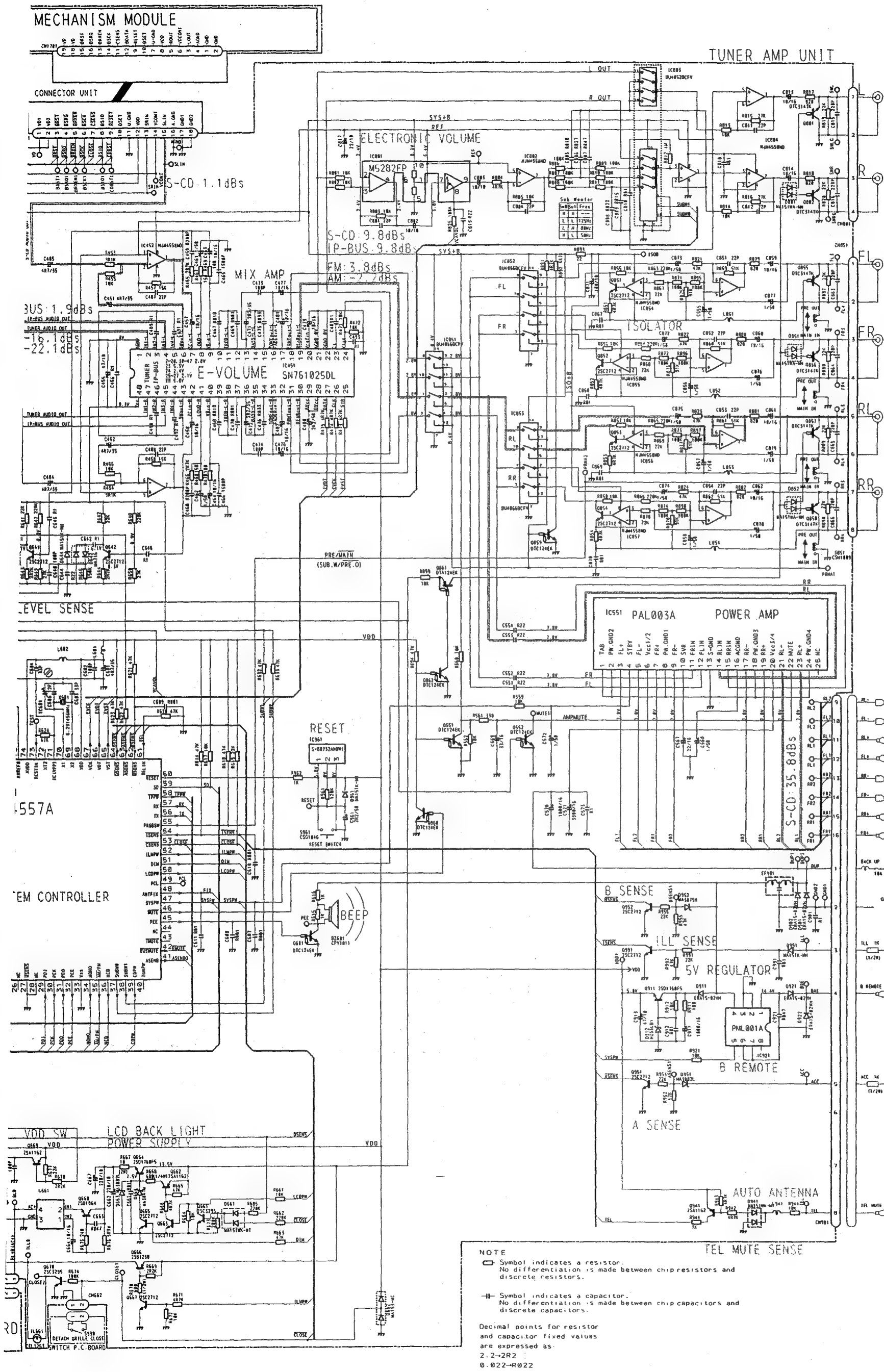
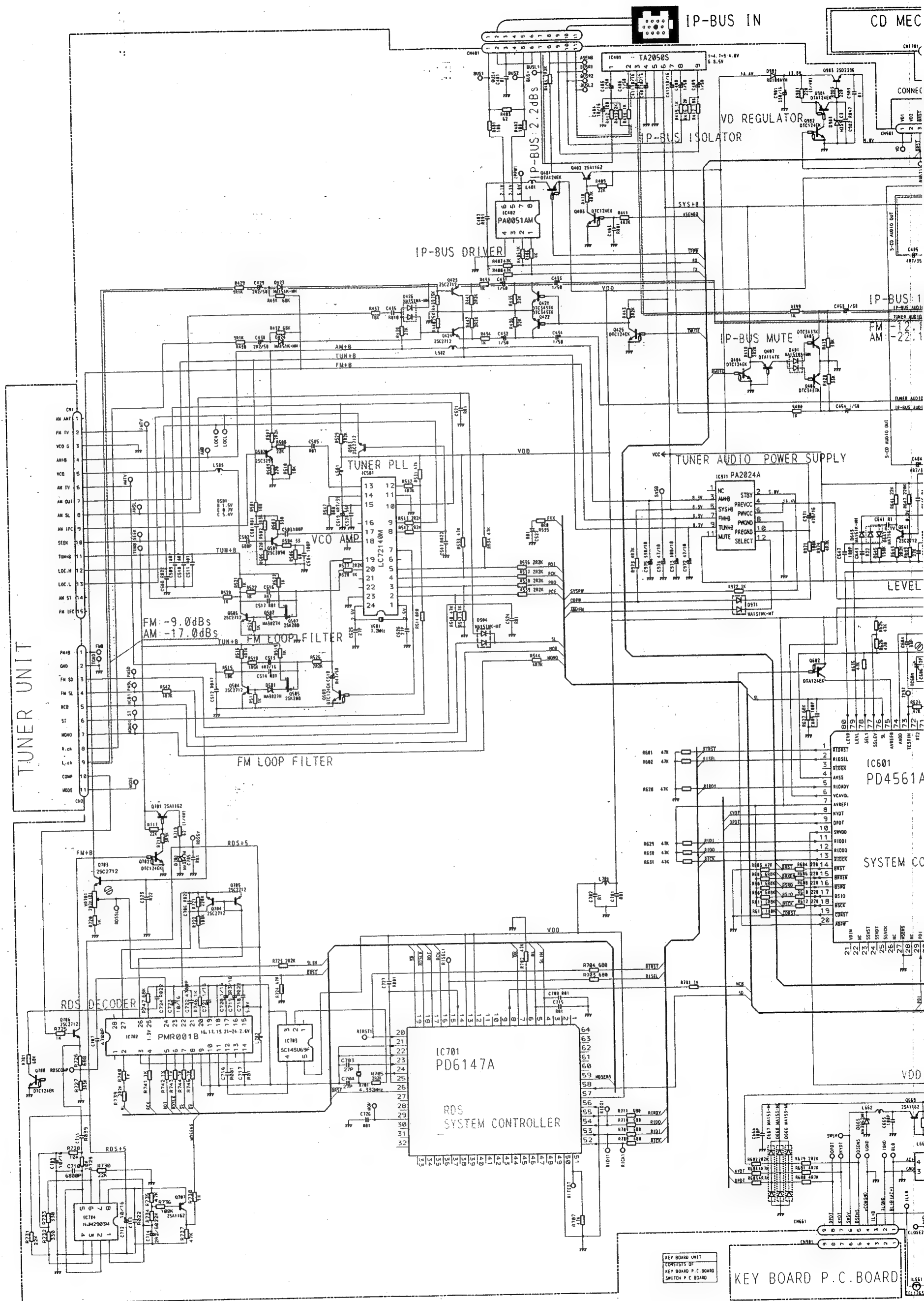


Fig.20

## 7.2 TUNER AMP UNIT (DEH-P815RDS/EW)

### ● Circuit Diagram



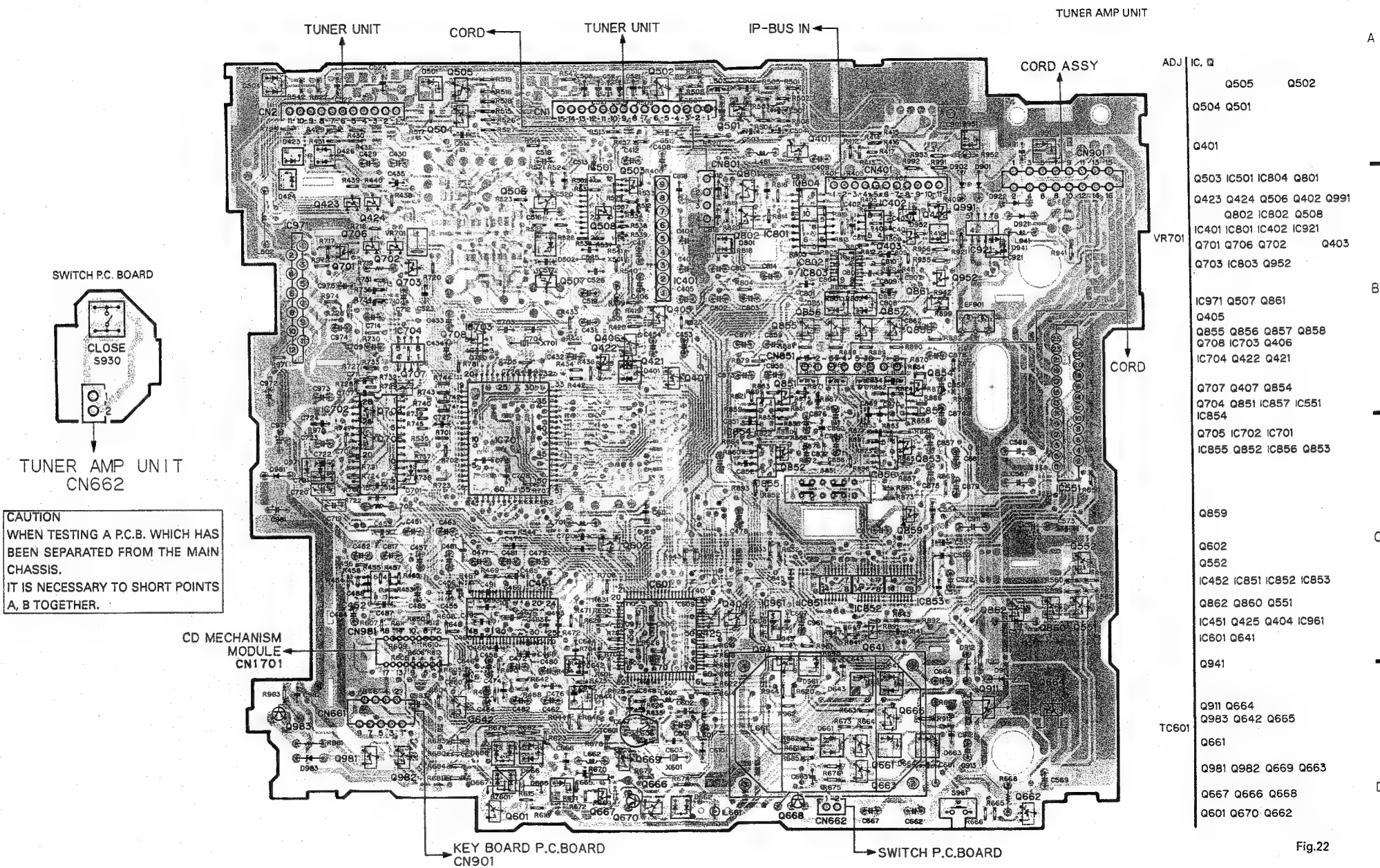
KEY BOARD UNIT  
CONSISTS OF  
KEY BOARD P.C. BOARD  
SWITCH P.C. BOARD

KEY BOARD P.C. BOARD





● Connection Diagram



|            |       |                     |
|------------|-------|---------------------|
| ADJ. IC, Q | Q505  | Q502                |
|            | Q504  | Q501                |
|            | Q401  |                     |
|            | Q503  | IC501 IC804 Q801    |
|            | Q423  | Q424 Q506 Q402 Q991 |
|            |       | Q802 IC802 Q508     |
|            | IC401 | IC801 IC402 IC921   |
|            | Q701  | Q706 Q702 Q403      |
|            | Q703  | IC803 Q952          |
|            | IC971 | Q507 Q861           |
|            | Q405  | Q855 Q856 Q857 Q858 |
|            | Q708  | IC703 Q406          |
|            | IC704 | Q422 Q421           |
|            | Q707  | Q407 Q854           |
|            | Q704  | Q851 IC857 IC551    |
|            | IC854 |                     |
|            | Q705  | IC702 IC701         |
|            | IC855 | Q852 IC856 Q853     |
|            | Q859  |                     |
|            | Q602  |                     |
|            | Q552  |                     |
|            | IC452 | IC851 IC852 IC853   |
|            | Q862  | Q860 Q551           |
|            | IC451 | Q425 Q404 IC961     |
|            | IC601 | Q641                |
|            | Q941  |                     |
|            | Q911  | Q664                |
|            | Q983  | Q642 Q665           |
|            | Q661  |                     |
|            | Q981  | Q982 Q669 Q663      |
|            | Q667  | Q666 Q668           |
|            | Q601  | Q670 Q662           |

Fig.22



### 7.3 TUNER AMP UNIT (DEH-P813/ES)

#### ● Connection Diagram

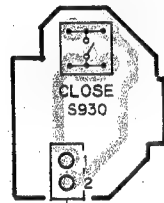
A

B

C

D

SWITCH P.C. BOARD



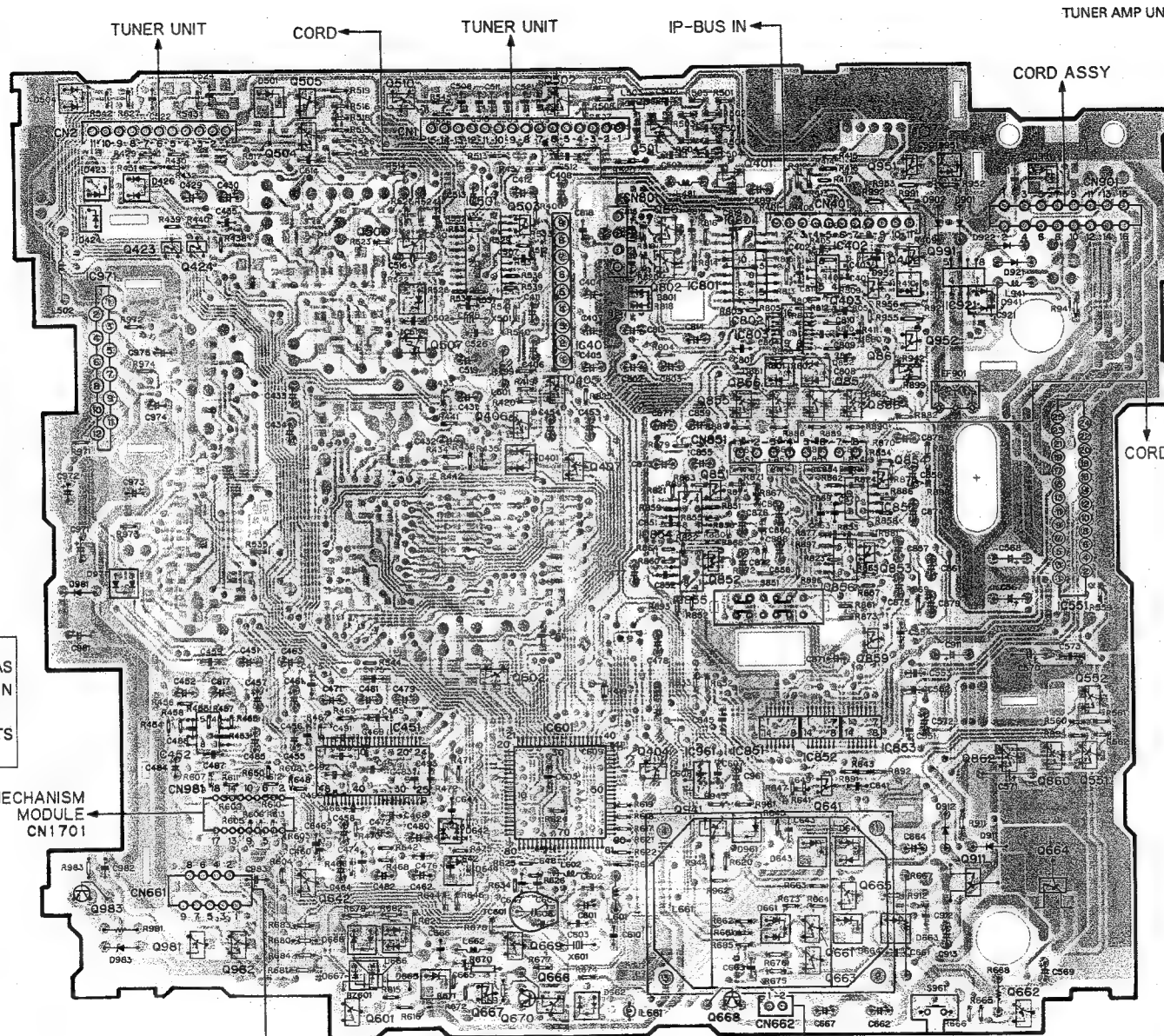
TUNER AMP UNIT  
CN662

CAUTION  
WHEN TESTING A P.C.B. WHICH HAS  
BEEN SEPARATED FROM THE MAIN  
CHASSIS.  
IT IS NECESSARY TO SHORT POINTS  
A, B TOGETHER.

CD MECHANISM  
MODULE  
CN1701

KEY BOARD P.C. BOARD  
CN901

SWITCH P.C. BOARD



TUNER AMP UNIT

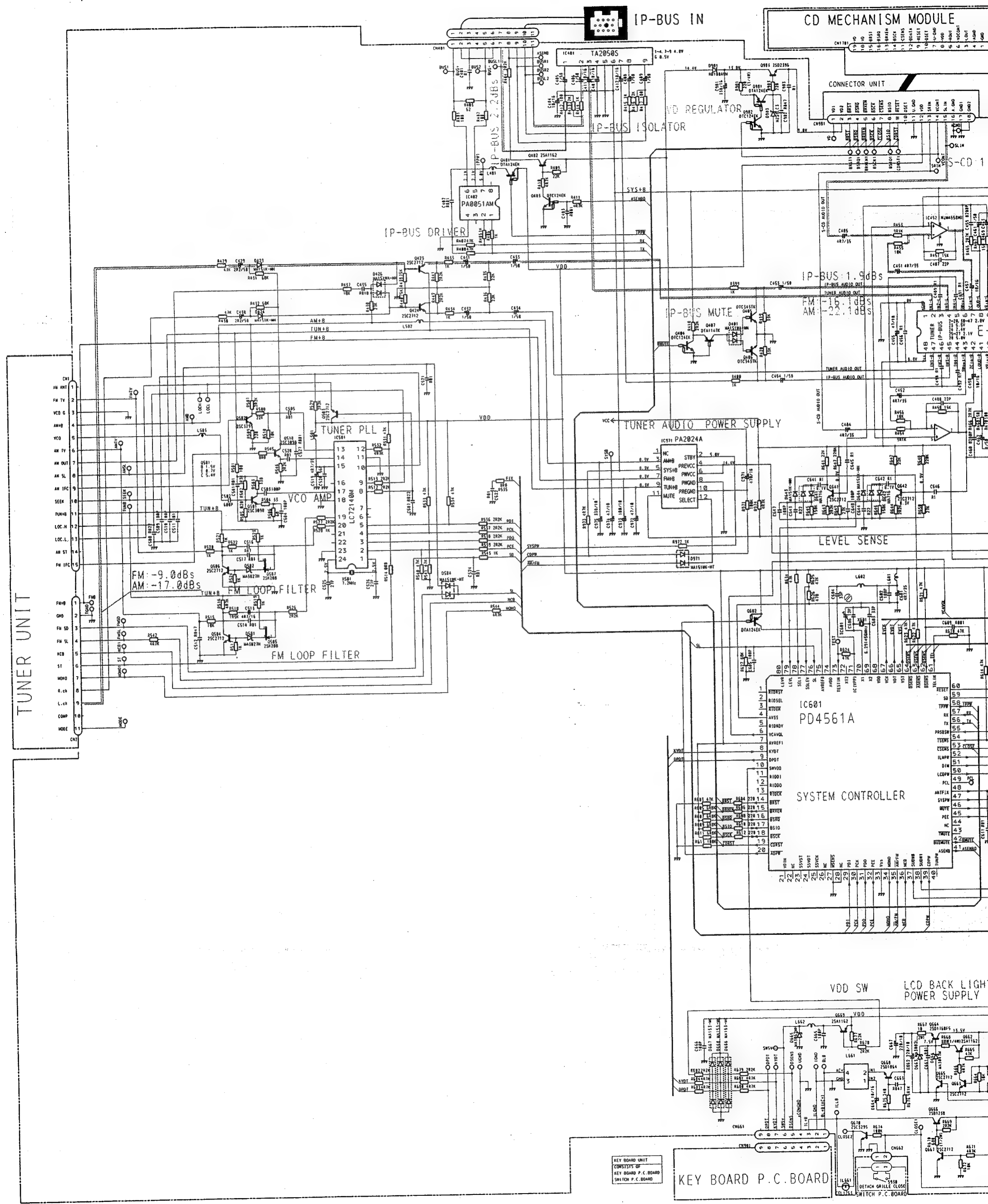
CORD ASSY

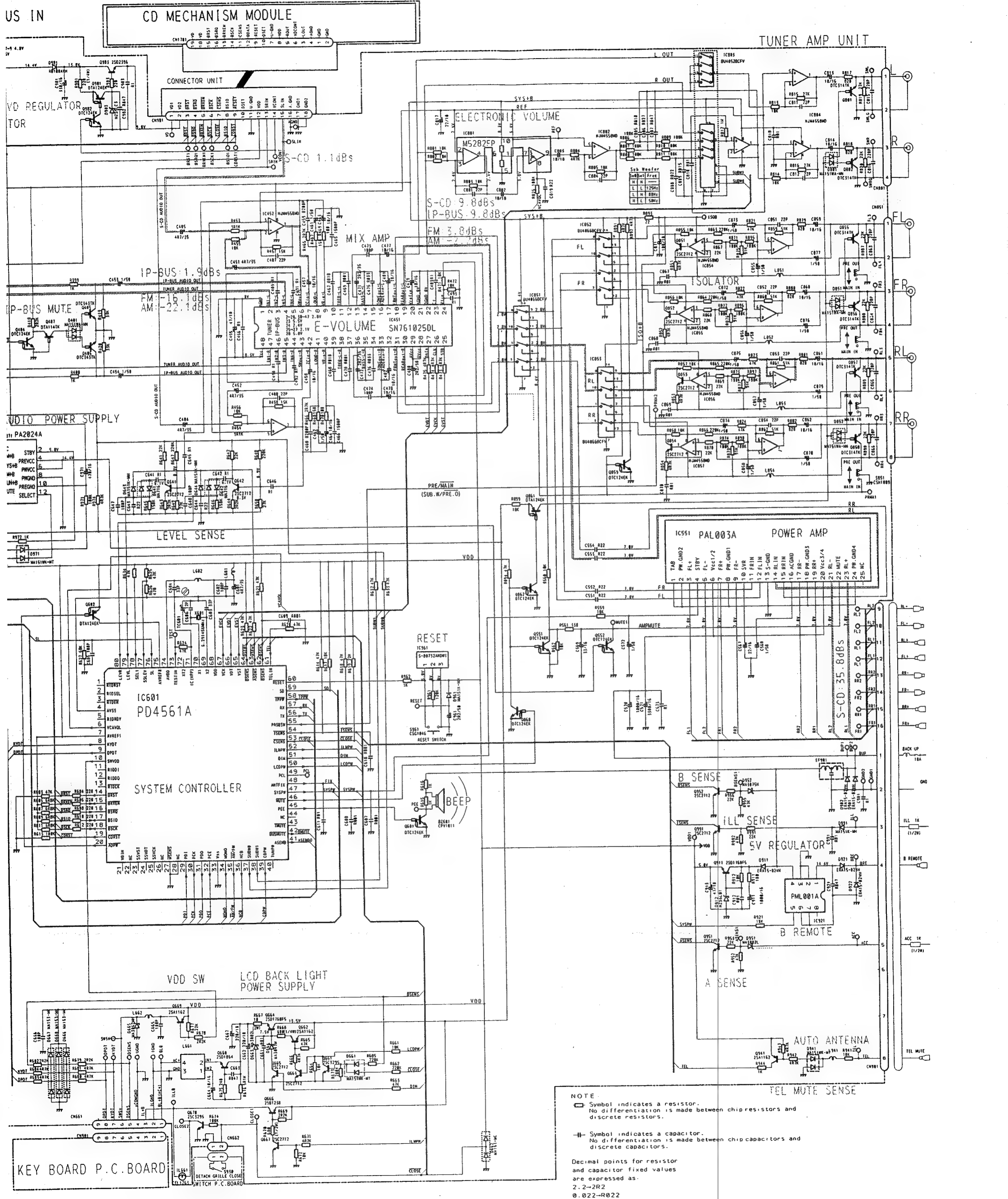
ADJ IC. Q

Q505 Q510 Q502  
Q504 Q501  
Q401 Q951  
Q503 IC501 IC804 Q801  
Q423 Q424 Q506 Q402 Q991  
Q802 IC802  
IC401 IC801 IC402 IC921  
Q403  
IC803 Q952  
IC971 Q507 Q861  
Q405  
Q855 Q856 Q857 Q858  
Q406  
Q407 Q854  
Q851 IC857 IC551  
IC854  
IC855 Q852 IC856 Q853  
Q859  
Q602  
Q552  
IC452 IC851 IC852 IC853  
Q862 Q860 Q551  
IC451 Q404 IC961  
IC601 Q641  
Q941  
Q911 Q664  
Q983 Q642 Q665  
Q661  
Q981 Q982 Q669 Q663  
Q667 Q666 Q668  
Q601 Q670 Q662

TC601

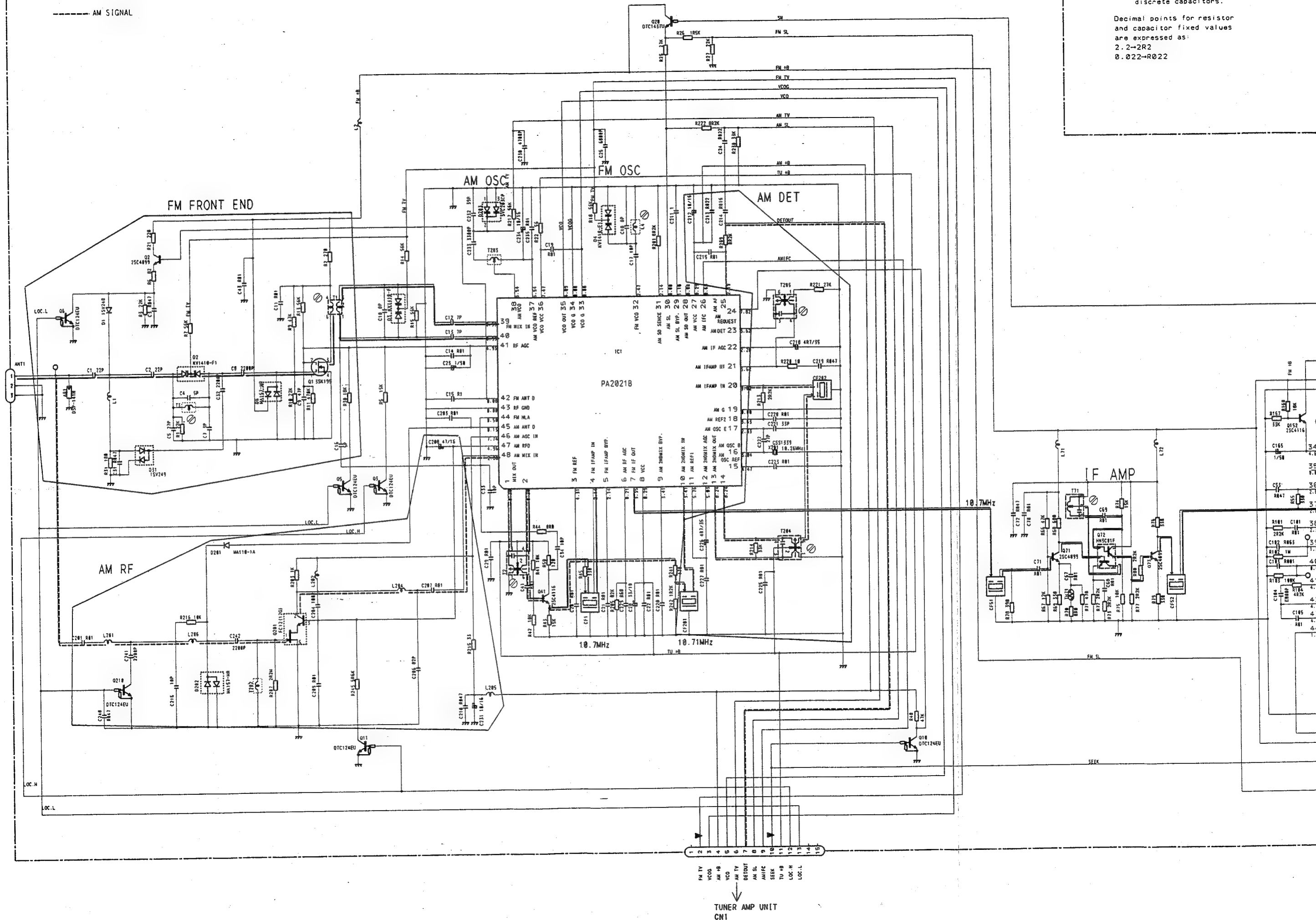
Fig.23





FM SIGNAL  
AM SIGNAL

NOTE:  
□ Symbol indicates a resistor.  
No differentiation is made between chip and discrete resistors.  
—||— Symbol indicates a capacitor.  
No differentiation is made between chip and discrete capacitors.  
Decimal points for resistor and capacitor fixed values are expressed as:  
2.2→2R2  
0.022→R022







● Connection Diagram

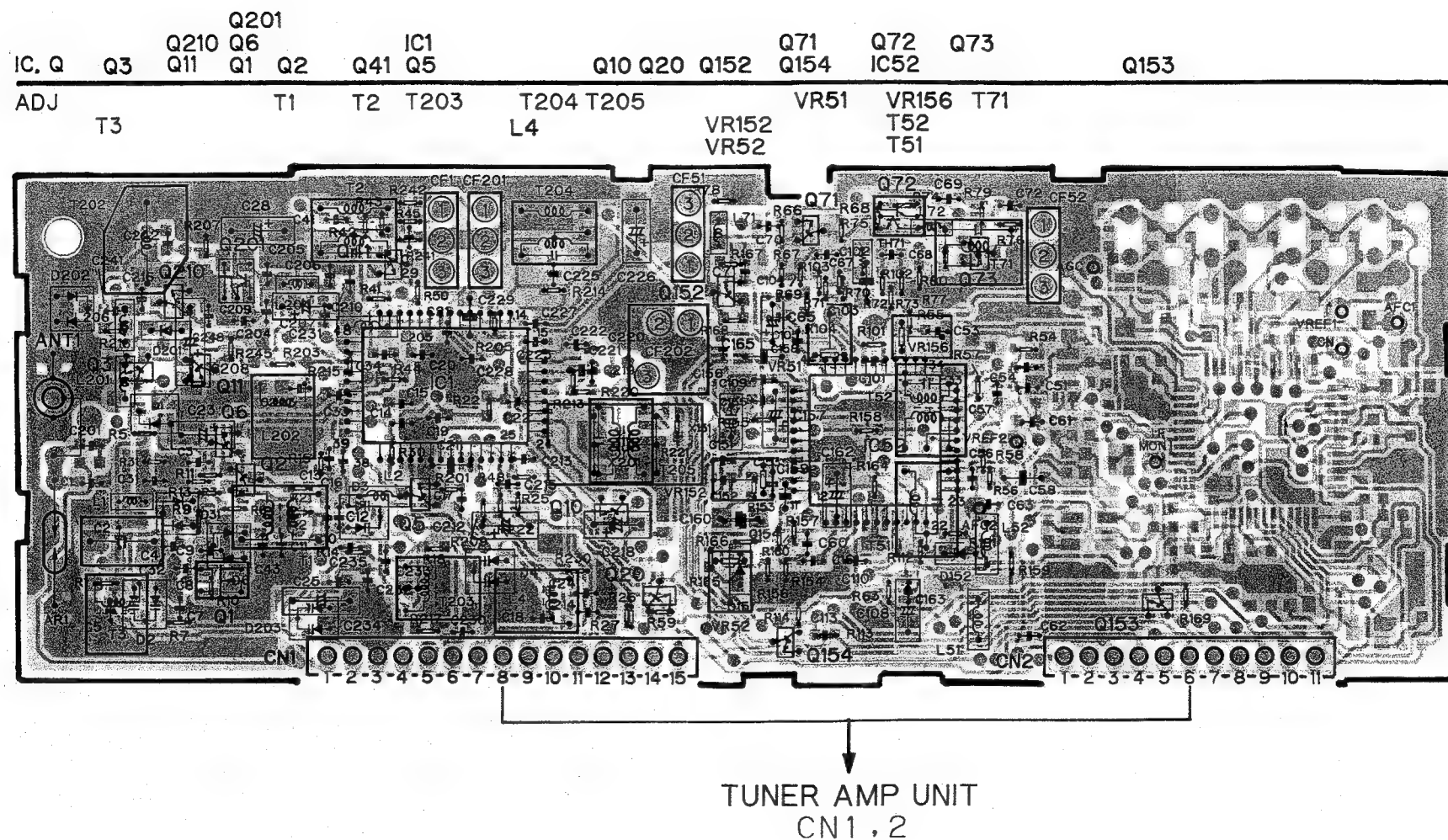


Fig.26



## 7.5 TUNER UNIT (DEH-P815RDS/EW)

## ● Connection Diagram

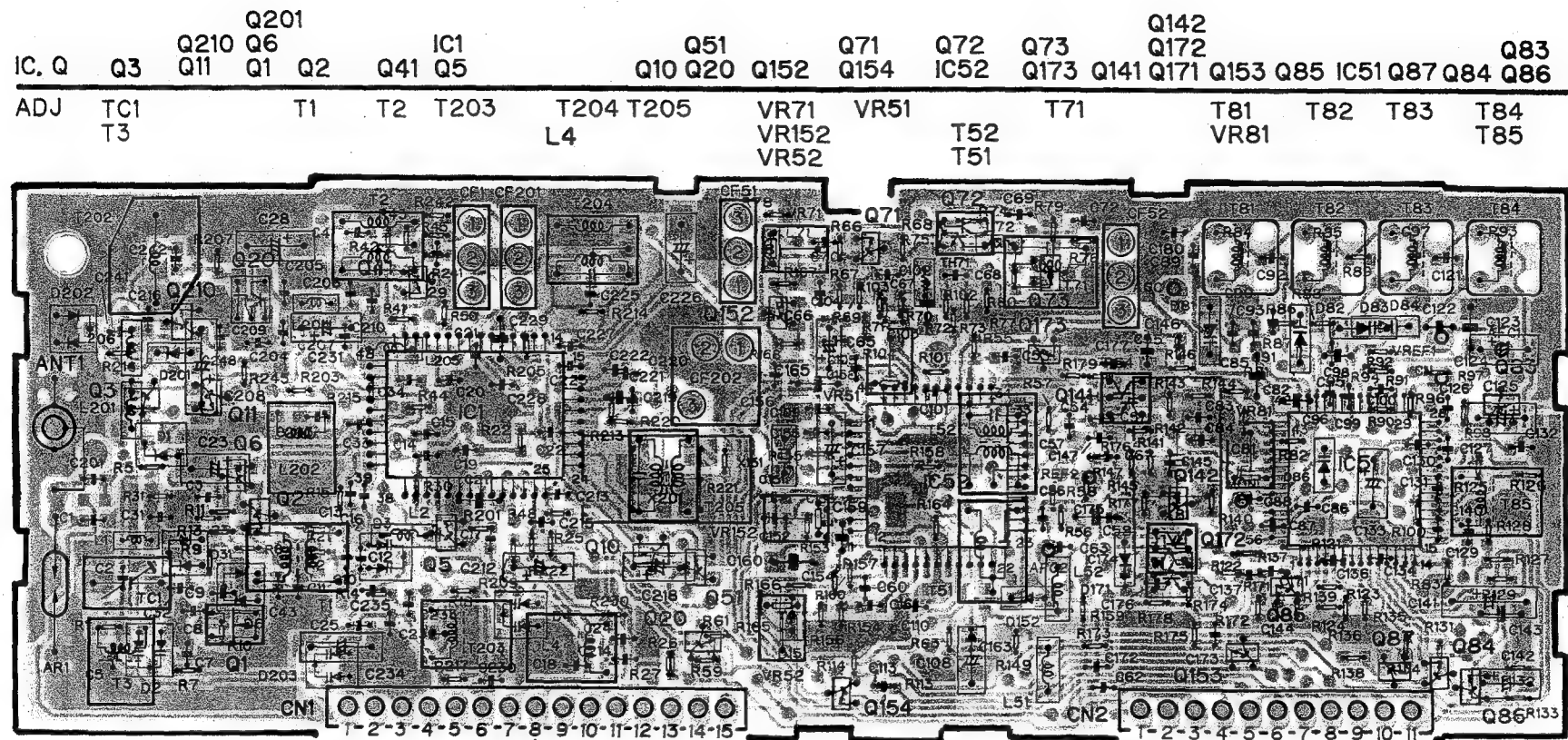


Fig.27

● Circuit Diagram

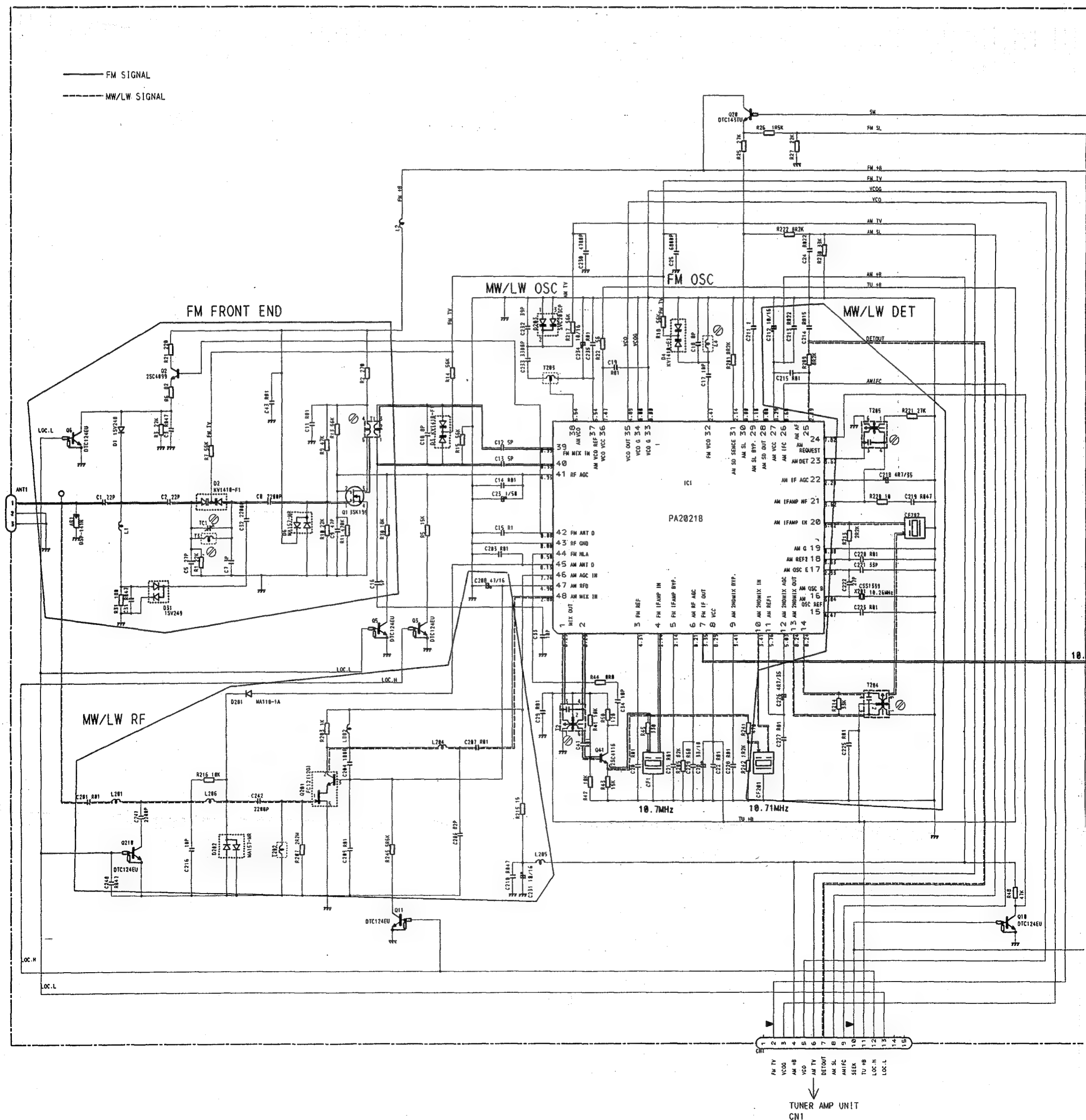
# TUNER UNIT

NOTE

□ Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.

—|— Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:  
2.2→2R2  
0.022→R022



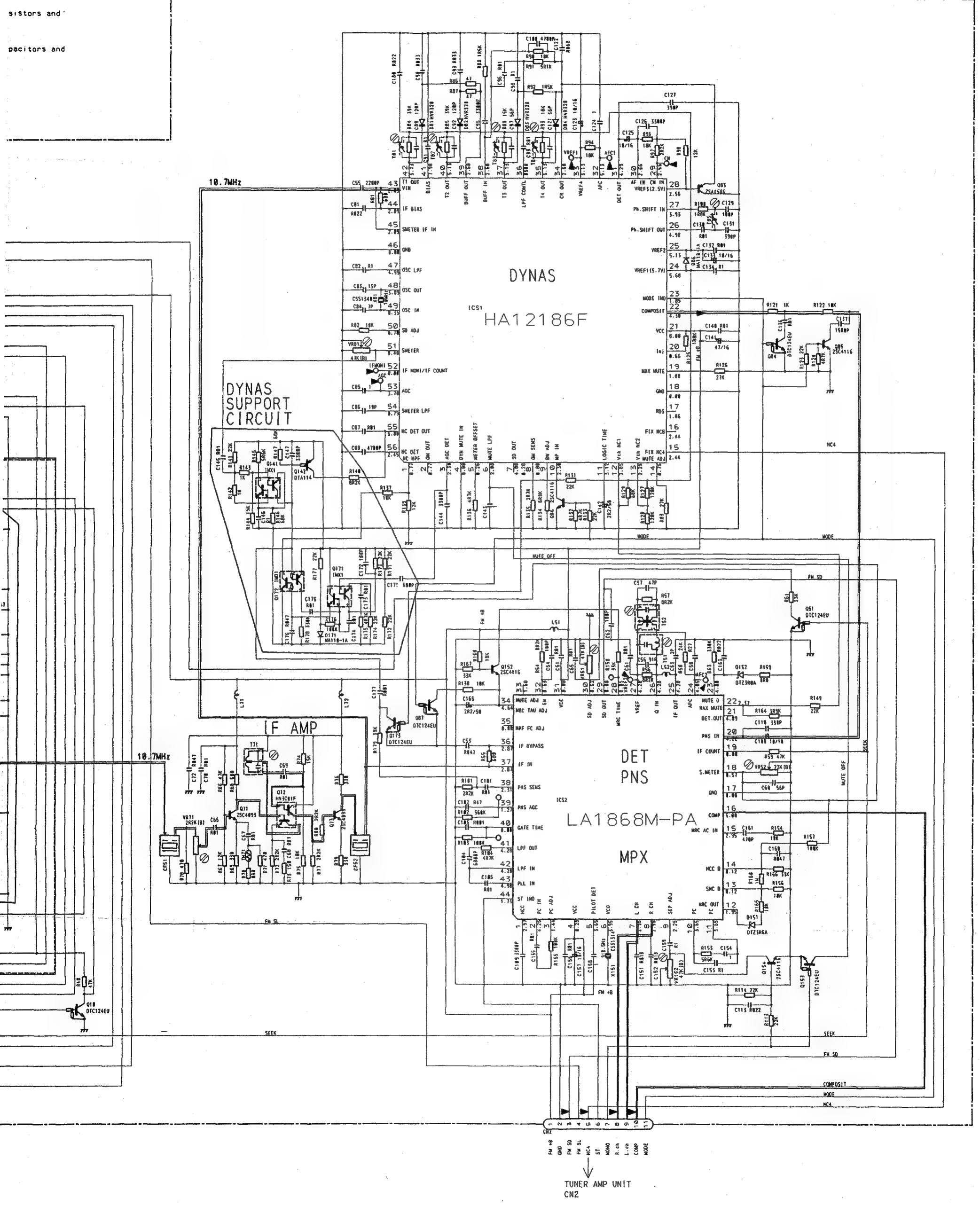
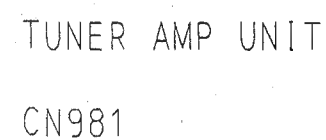


Fig.28

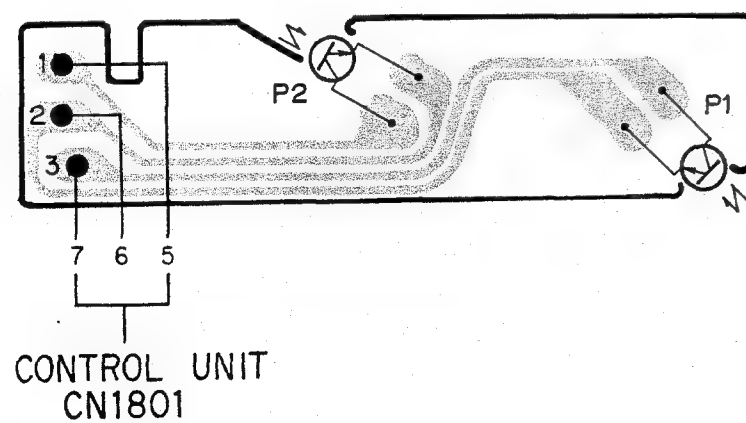
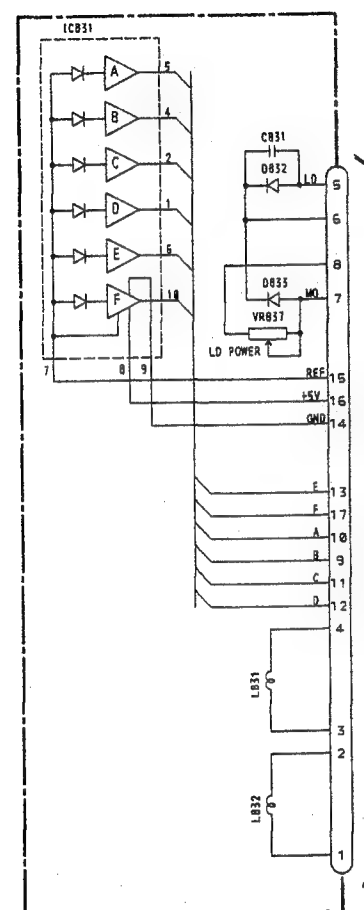


CONTROL UNIT





### ● Connection Diagram



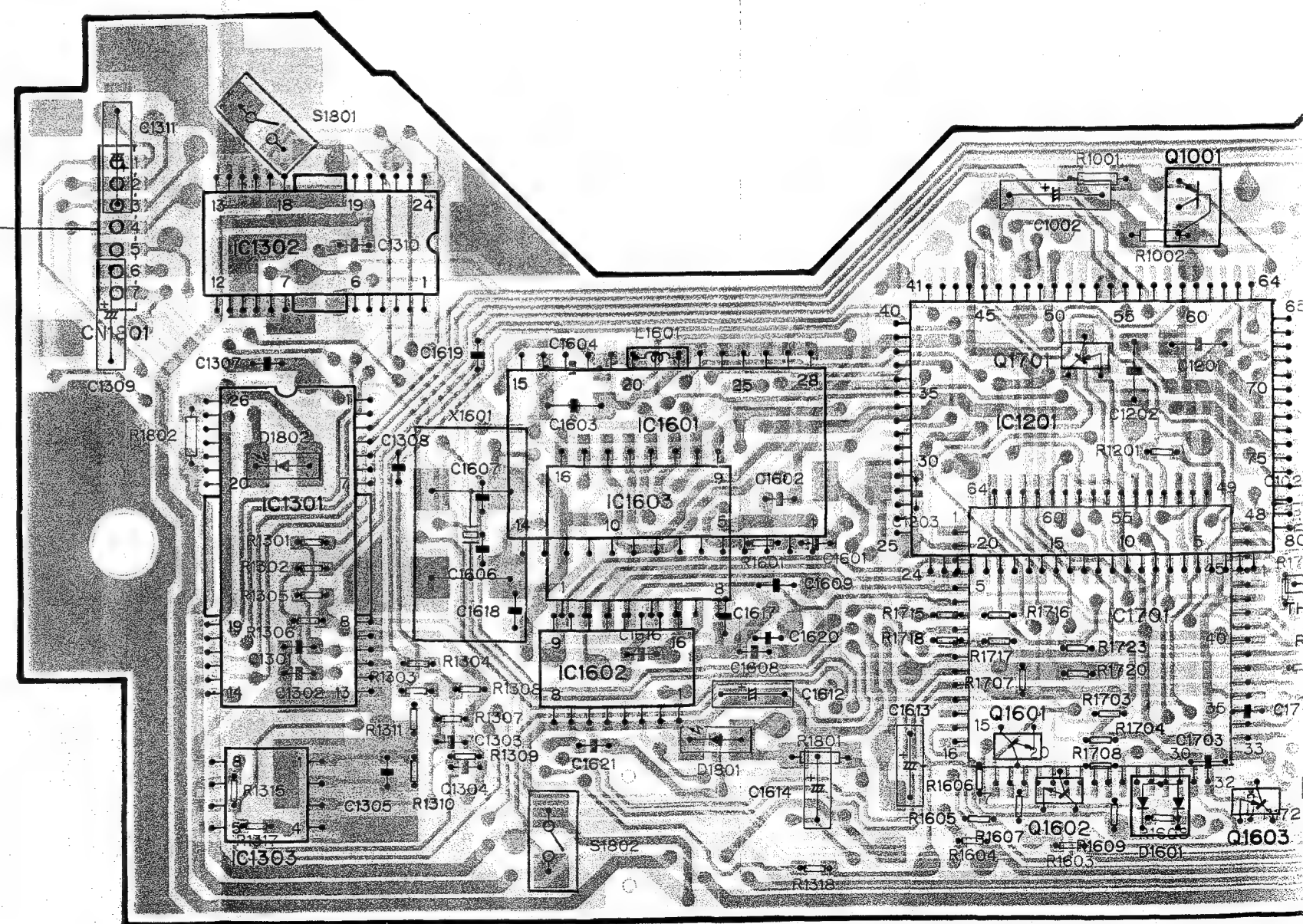
CONTROL UNIT

IC1302  
IC1301  
IC1303

IC. Q  
ADJ

IC1601  
IC1603  
IC1602

Q1001  
Q1701 IC1201  
Q1601 Q1602 IC1701 Q1603





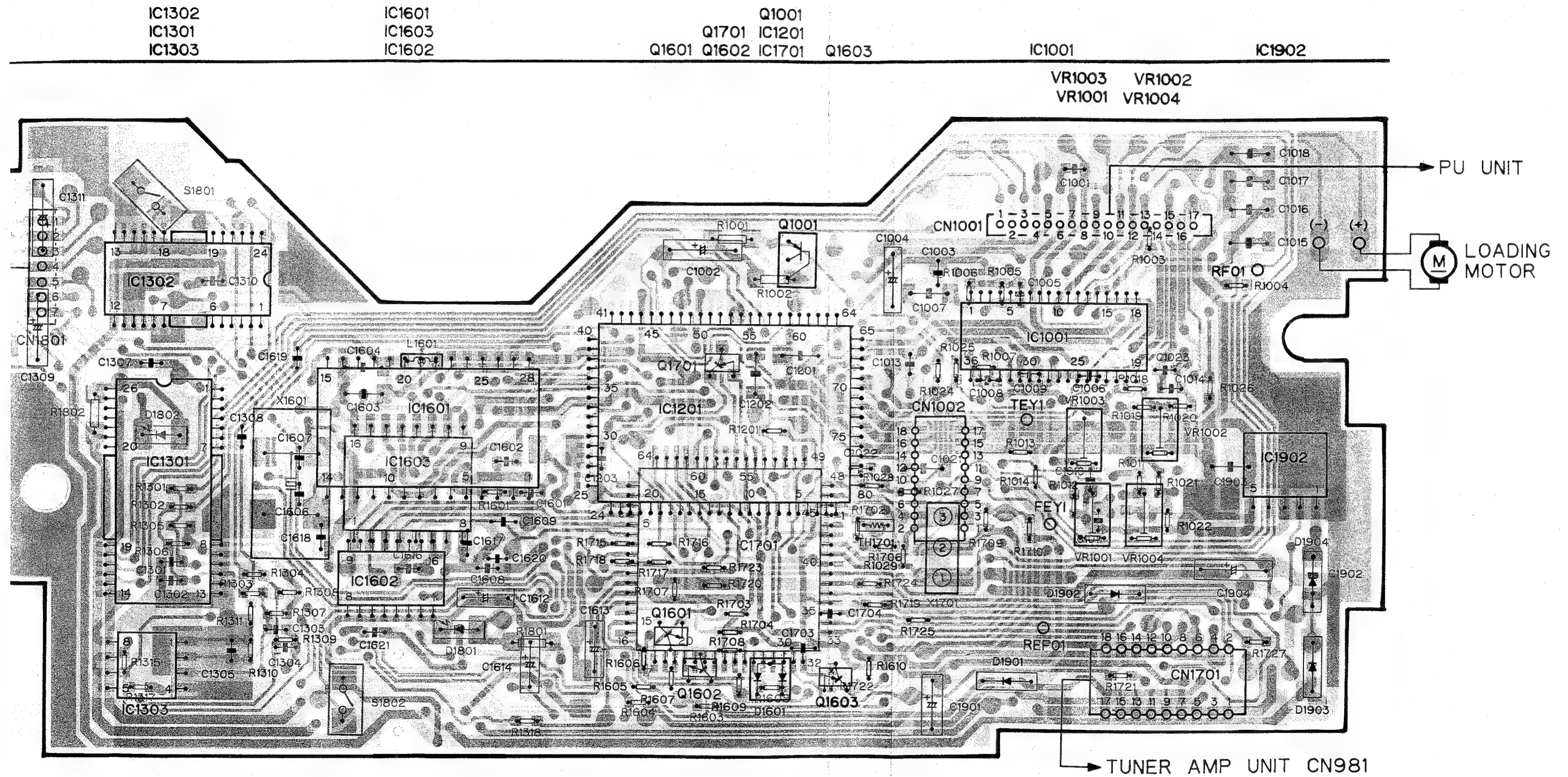
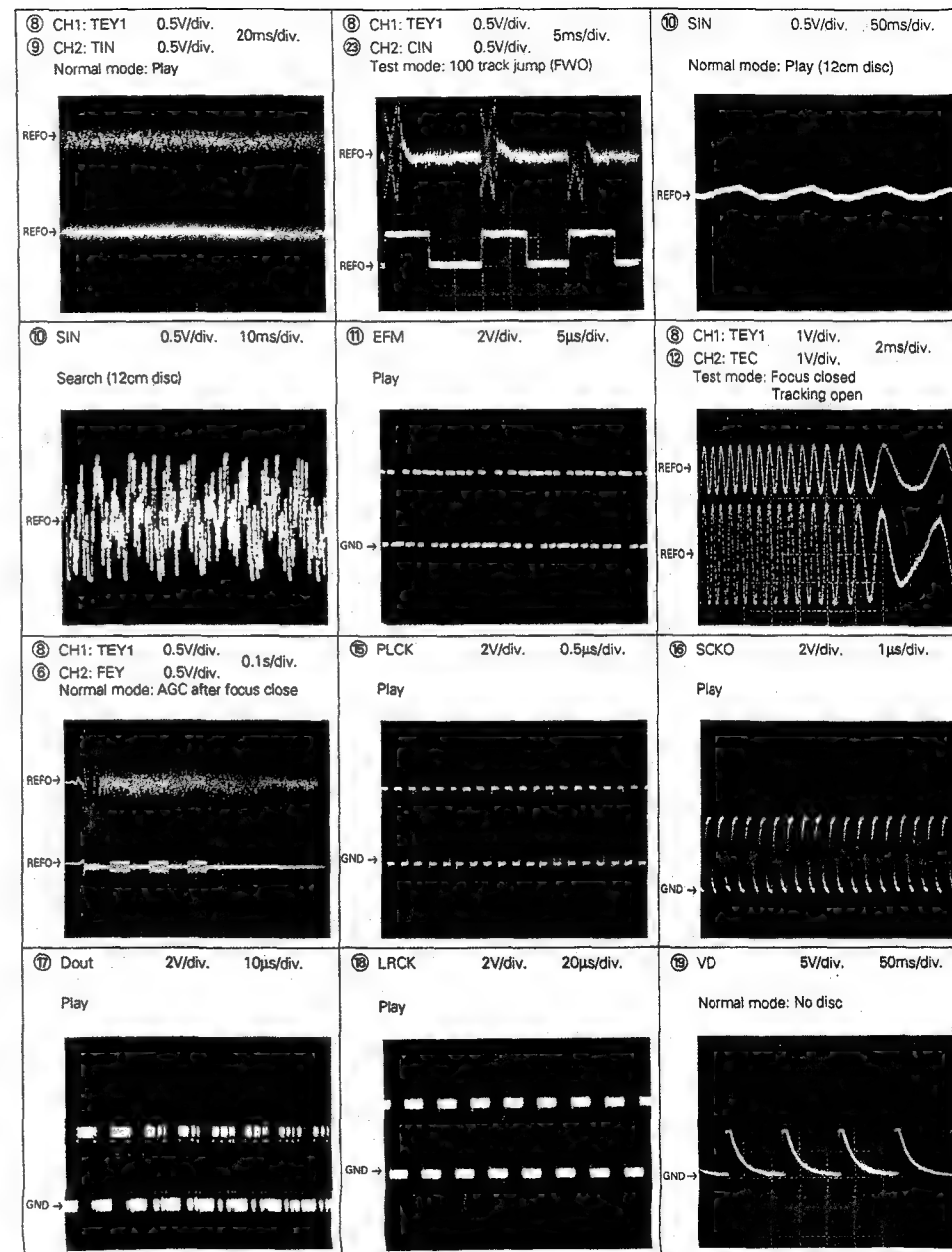
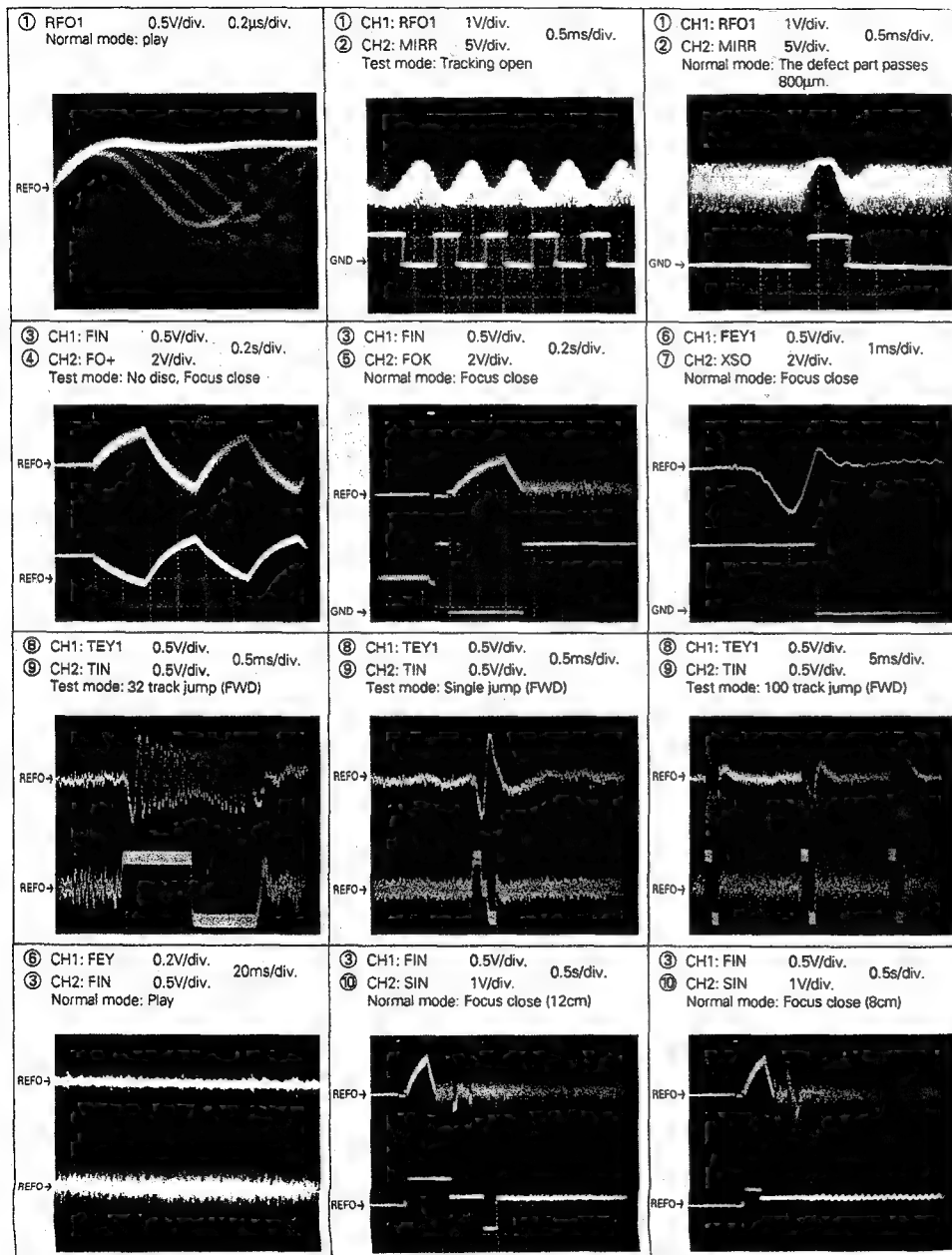
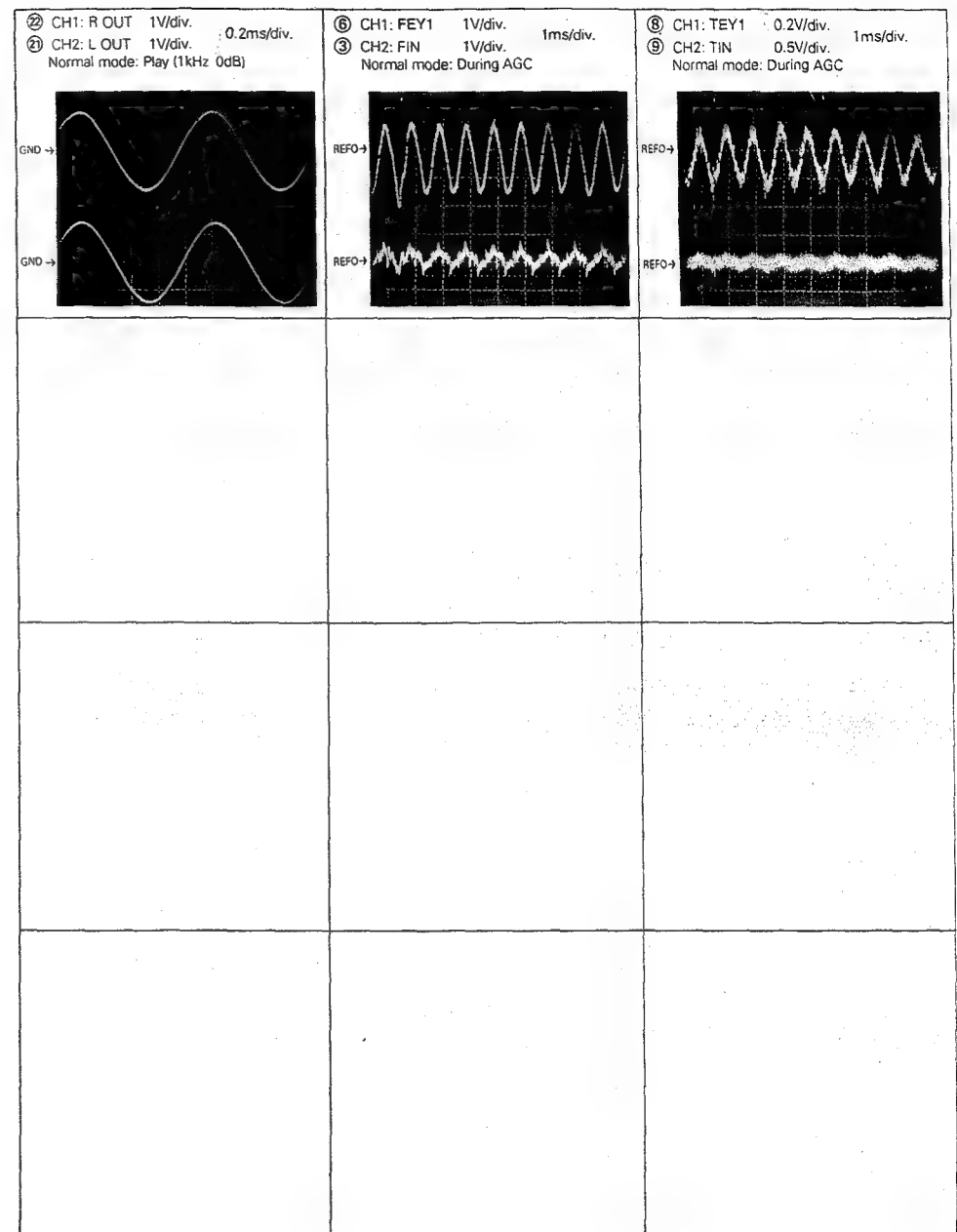


Fig.30

● Waveforms

Note: 1. The encircled numbers denote measuring points in the circuit diagram.  
2. Reference voltage  
REFO1: 2.5V



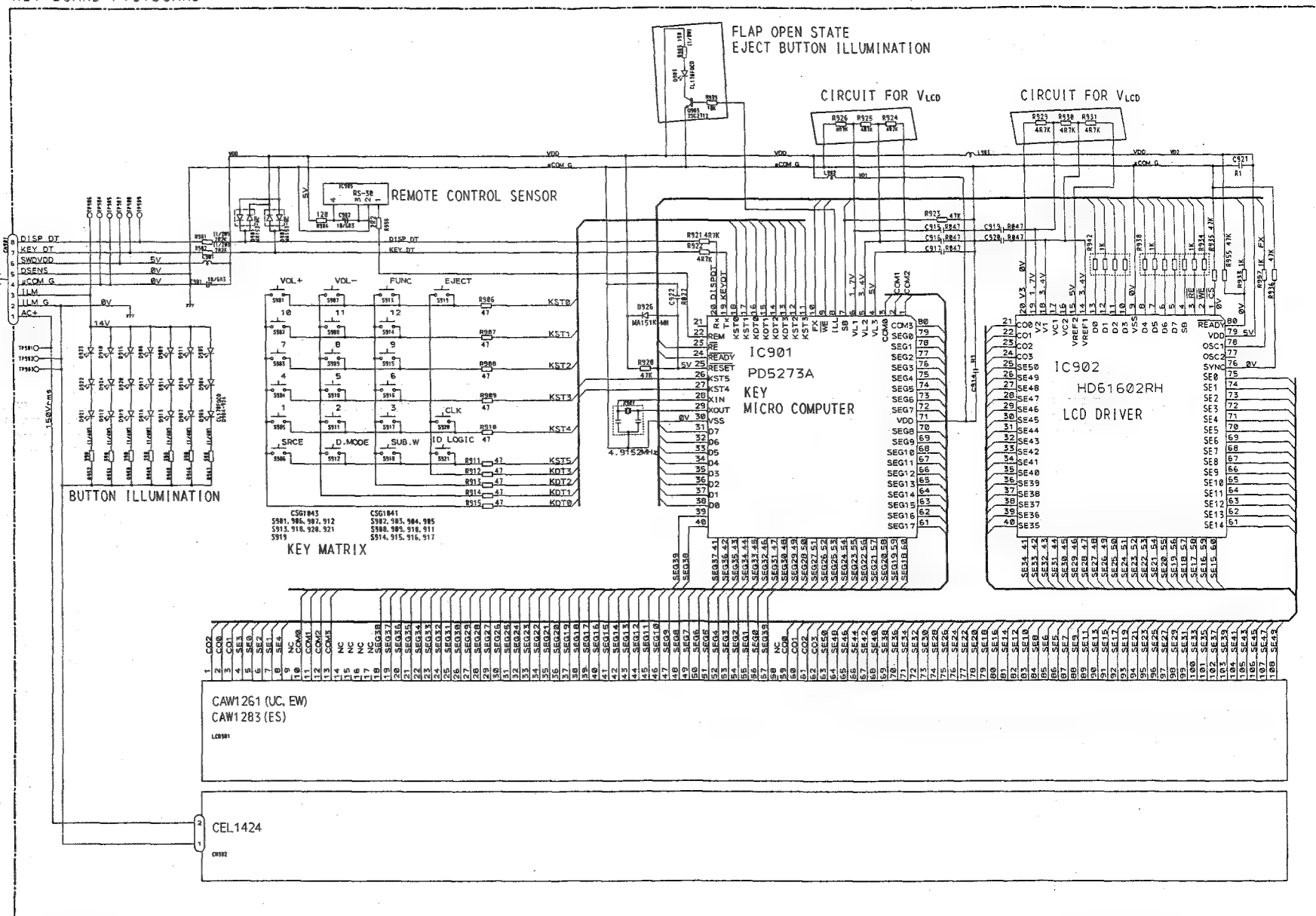


## 7.7 KEY BOARD UNIT

### ● Circuit Diagram

#### KEY BOARD P.C.BOARD

TUNER AMP UNIT  
CN861



#### NOTE:

- Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:  
2.2~2R2  
0.022~R022

KEY BOARD UNIT  
Consists of  
KEY BOARD P.C.BOARD  
SWITCH P.C.BOARD

Fig.31

● Connection Diagram

IC, Q Q903 IC905

IC902

IC901

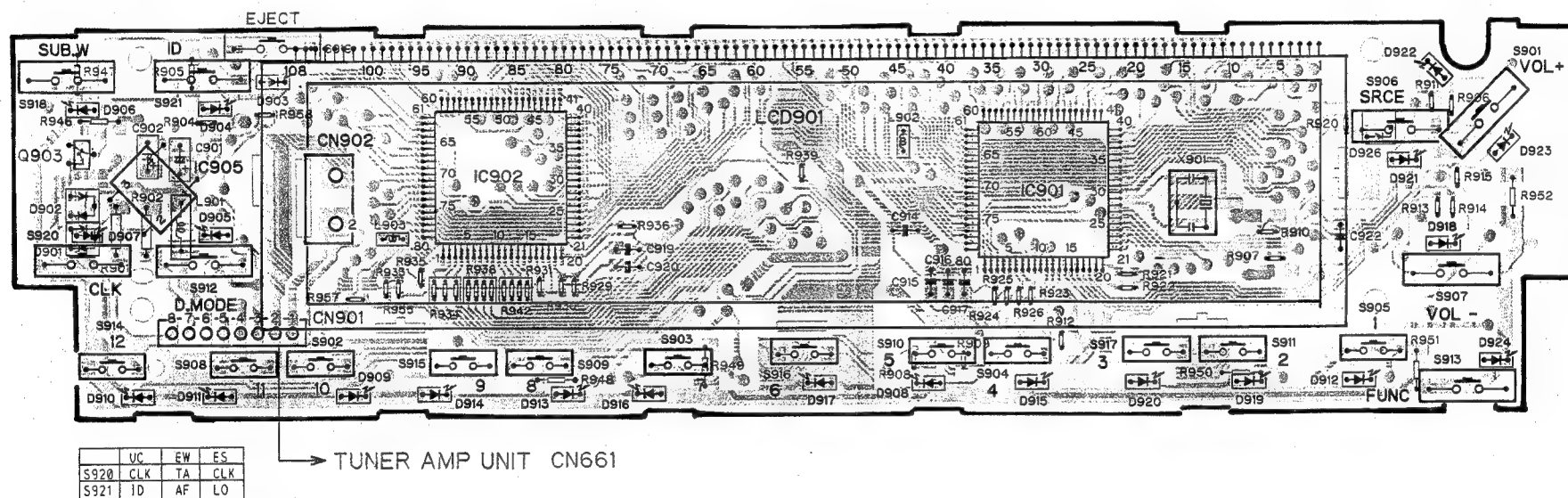


Fig.32



# 8. CHASSIS EXPLODED VIEW

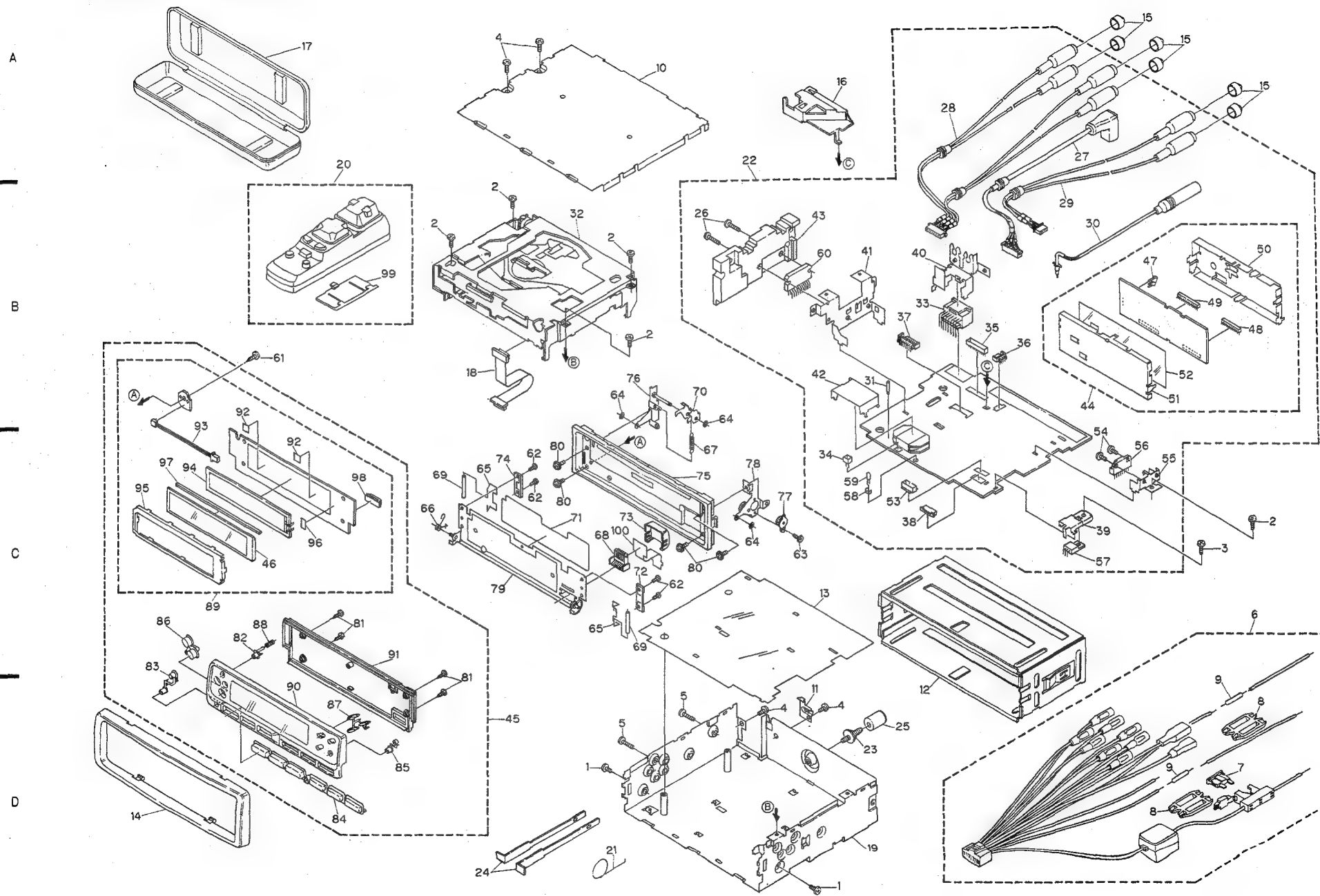


Fig.33



# NOTES:

- Parts marked by "\*" are generally unavailable because they are not in our Master Spare Parts List.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

## ● Parts List(DEH-P815/UC)

| Mark No. | Description         | Part No.     | Mark No. | Description        | Part No.     |
|----------|---------------------|--------------|----------|--------------------|--------------|
| 1        | Screw               | BMZ30P040FMC | 41       | Bracket            | CNC5639      |
| 2        | Screw               | BSZ26P050FMC | 42       | Holder             | CNC5968      |
| 3        | Screw               | BSZ26P080FMC | 43       | Heat Sink          | CNR1348      |
| 4        | Screw               | BSZ30P060FMC | 44       | Tuner Unit         | CWE1358      |
| 5        | Screw               | BSZ30P120FMC | 45       | Detach Grille Assy | CXA7061      |
| 6        | Cord Assy           | CDE4648      | 46       | LCD(LCD901)        | CAW1261      |
| 7        | Fuse(10A)           | CEK1136      | 47       | Antenna Jack       | CKX1010      |
| 8        | Cap                 | CNS1472      | 48       | Plug(CN2)          | CKS1618      |
| 9        | Resistor            | RS1/2P102JL  | 49       | Plug(CN1)          | CKS1622      |
| 10       | Case                | CNB1881      | 50       | Holder             | CNC5358      |
| 11       | Holder              | CNC3850      | 51       | Holder             | CNC5432      |
| 12       | Holder              | CNC4946      | 52       | Insulator          | CNM4046      |
| 13       | Insulator           | CNM4377      | 53       | Connector(CN981)   | CKS2301      |
| 14       | Panel               | CNS3113      | 54       | Screw              | BSZ30P060FMC |
| 15       | Cap                 | CNV2680      | 55       | Bracket            | CNC5014      |
| 16       | Holder              | CNV4032      | 56       | IC(IC971)          | PA2024A      |
| 17       | Case Assy           | CXA7194      | 57       | Transistor(Q983)   | 2SD2396      |
| 18       | Connector Unit      | CXA7292      | 58       | Holder             | CNV1906      |
| 19       | Chassis Unit        | CXA7586      | 59       | Lamp(IL661)        | CEL1263      |
| 20       | Remote Control Assy | CXA7810      | 60       | IC(IC551)          | PAL003A      |
| 21       | Spring              | CBH-865      | 61       | Screw              | BPZ20P060FMC |
| 22       | Tuner Amp Unit      | CWX1791      | 62       | Screw              | CBA1082      |
| 23       | Screw               | CBA1284      | 63       | Screw              | CBA1176      |
| 24       | Handle              | CNC4947      | 64       | Washer             | CBF1039      |
| 25       | Bush                | CNV1009      | 65       | Spring             | CBH1528      |
| 26       | Screw               | BSZ26P120FMC | 66       | Spring             | CBH1660      |
| 27       | Cord                | CDE4489      | 67       | Spring             | CBH1696      |
| 28       | Cord                | CDE4498      | 68       | Connector(CN101)   | CKS2780      |
| 29       | Cord                | CDE4499      | 69       | Roller             | CLA2041      |
| 30       | Antenna Cable       | CDH1146      | 70       | Arm                | CNC5640      |
| 31       | Clamper             | CEF1004      | 71       | Sheet              | CNM4179      |
| 32       | CD Mechanism Module | CKX2850      | 72       | Holder             | CNV2141      |
| 33       | Plug(CN901)         | CKM1187      | 73       | Cover              | CNV3965      |
| 34       | Plug(CN662)         | CKS-783      | 74       | Holder             | CNV4105      |
| 35       | Plug(CN401)         | CKS1044      | 75       | Panel Unit         | CXA7069      |
| 36       | Plug(CN801)         | CKS1238      | 76       | Holder Unit        | CXA7077      |
| 37       | Plug(CN851)         | CKS1242      | 77       | Damper Unit        | CXA7714      |
| 38       | Connector(CN661)    | CKS2212      | 78       | Holder Unit        | CXA7794      |
| 39       | Holder              | CNC5013      | 79       | Holder Unit        | CXA7959      |
| 40       | Bracket             | CNC5638      | 80       | Screw              | PMS20P030FZK |

| Mark No. | Description    | Part No.     | Mark No. | Description      | Part No. |
|----------|----------------|--------------|----------|------------------|----------|
| 81       | Screw          | BPZ20P080FZK | 91       | Cover Unit       | CXA7172  |
| 82       | Button         | CAC4062      | 92       | Film             | CNM4349  |
| 83       | Button         | CAC4064      | 93       | Cord             | CDE4387  |
| 84       | Button         | CAC4141      | 94       | EL               | CEL1424  |
| 85       | Button         | CAC4149      | 95       | Holder           | CNC5497  |
| 86       | Button         | CAC4381      | 96       | Spacer           | CNM4359  |
| 87       | Button         | CAC4387      | 97       | Rubber           | CNV3967  |
| 88       | Spring         | CBH1661      | 98       | Connector(CN901) | CKS2733  |
| 89       | Key Board Unit | CWM4047      | 99       | Battery Cover    | CNS3477  |
| 90       | Grille Unit    | CXA7075      | 100      | P.C.Board        | CNP3847  |

- The DEH-P815RDS/EW and DEH-P813/ES Parts Lists enumerate the parts which differ from those enumerated in the DEH-P815/UC Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The DEH-P815/UC Parts List is given on page 107.

| Mark No. | Description        | DEH-P815/UC | DEH-P815RDS/EW | DEH-P813/ES |
|----------|--------------------|-------------|----------------|-------------|
|          |                    | Part No.    | Part No.       | Part No.    |
| 19       | Chassis Unit       | CXA7586     | CXA7078        | CXA7586     |
| 22       | Tuner Amp Unit     | CWX1791     | CWX1790        | CWX1792     |
| 28       | Cord               | CDE4498     | CDE4482        | CDE4498     |
| 29       | Cord               | CDE4499     | CDE4483        | CDE4499     |
| 44       | Tuner Unit         | CWE1358     | CWE1356        | CWE1358     |
| 45       | Detach Grille Assy | CXA7061     | CXA7060        | CXA7062     |
| 46       | LCD(LCD901)        | CAW1261     | CAW1261        | CAW1283     |
| 84       | Button             | CAC4141     | CAC4065        | CAC4142     |
| 87       | Button             | CAC4387     | CAC4382        | CAC4388     |
| 89       | Key Board Unit     | CWM4047     | CWM4046        | CWM4048     |
| 90       | Grille Unit        | CXA7075     | CXA7072        | CXA7184     |

## 9. CD MECHANISM MODULE EXPLODED VIEW

### ● Parts List

| Mark No. | Description            | Part No.     | Mark No. | Description           | Part No.     |
|----------|------------------------|--------------|----------|-----------------------|--------------|
| 1        | Screw                  | PMS26P040FMC | 6        | Connector(7P)(CN1801) | CKS2196      |
| 2        | Control Unit           | CWX1720      | 7        | CD Mechanism Unit     | CXA7200      |
| 3        | Connector(17P)(CN1001) | CKS1955      | 8        | Screw                 | BMZ20P030FMC |
| 4        | Connector(18P)(CN1701) | CKS2149      | 9        | Screw                 | BSZ20P040FMC |
| 5        | Connector(18P)(CN1002) | CKS2811      | 10       | Screw(M2×2)           | CBA1250      |

| Mark No. | Description  | Part No. | Mark No. | Description            | Part No.     |
|----------|--------------|----------|----------|------------------------|--------------|
| 11       | Screw(M2x3)  | CBA1077  | 61       | Damper                 | CNV3974      |
| 12       | Screw(M2x6)  | CBA1230  | 62       | Arm                    | CNV3565      |
| 13       | Screw(M2x5)  | CBA1296  | 63       | Arm                    | CNV3992      |
| 14       | Washer       | CBF1038  | 64       | Gear                   | CNV3567      |
| 15       | Washer       | CBF1060  | 65       | Gear                   | CNV3568      |
| 16       | Spring       | CBH1415  | 66       | Gear                   | CNV3569      |
| 17       | Spring       | CBH1417  | 67       | Gear                   | CNV3570      |
| 18       | Spring       | CBH1418  | 68       | Arm                    | CNV3571      |
| 19       | Spring       | CBH1743  | 69       | Holder                 | CNV3572      |
| 20       | Spring       | CBH1423  | 70       | Gear                   | CNV3573      |
| 21       | Spring       | CBH1457  | 71       | Holder                 | CNV3574      |
| 22       | Spring       | CBH1552  | 72       | Holder                 | CNV4067      |
| 23       | Spring       | CBH1553  | 73       | Holder                 | CNV3576      |
| 24       | Spring       | CBH1554  | 74       | Rack                   | CNV3577      |
| 25       | Spring       | CBH1665  | 75       | Arm                    | CNV3578      |
| 26       | Spring       | CBH1556  | 76       | Plate                  | CNV3629      |
| 27       | Spring       | CBH1557  | 77       | Guide                  | CNV3694      |
| 28       | Spring       | CBH1558  | * 78     | Gathering P.C.Board    | CNX2103      |
| 29       | Spring       | CBH1664  | 79       | Gathering P.C.Board    | CNX2270      |
| 30       | Spring       | CBH1560  | 80       | Screw Unit             | CXA2375      |
| 31       | Spring       | CBH1576  | 81       | Motor Unit(M2)         | CXA7150      |
| 32       | Spring       | CBH1577  | 82       | Chassis Unit           | CXA7196      |
| 33       | Spring       | CBH1666  | 83       | Arm Unit               | CXA5603      |
| 34       | Spring       | CBH1583  | 84       | Arm Unit               | CXA5604      |
| 35       | Spring       | CBH1628  | 85       | Bracket Unit           | CXA5605      |
| 36       | Spring       | CBL1170  | 86       | Lever Unit             | CXA7197      |
| 37       | Spring       | CBL1171  | 87       | Arm Unit               | CXA5607      |
| 38       | Spring       | CBL1200  | 88       | Arm Unit               | CXA5608      |
| 39       | Connector    | CDE4543  | 89       | Gear Unit              | CXA6976      |
| 40       | PU Unit      | CGY1031  | 90       | Motor Unit(M1)         | CXA7001      |
| 41       | Shaft        | CLA2220  | 91       | Bracket Unit           | CXA5938      |
| 42       | Roller       | CLA2255  | 92       | Frame Unit             | CXA6192      |
| 43       | Shaft        | CLA2256  | 93       | Motor Unit(M3)         | CXA6456      |
| 44       | Frame        | CNC5661  | 94       | Screw                  | JFZ17P035FNI |
| 45       | Arm          | CNC5565  | 95       | Screw                  | JFZ20P014FMC |
| 46       | Lever        | CNC4891  | 96       | Screw                  | JFZ20P020FZK |
| 47       | Lever        | CNC4892  | 97       | Screw                  | JFZ20P025FMC |
| 48       | Bracket      | CNC4893  | 98       | Photo-transistor(P1,2) | PT4800       |
| 49       | Arm          | CNC4895  | 99       | Washer                 | YE15FUC      |
| 50       | Arm          | CNC5566  | 100      | Washer                 | YE20FUC      |
| 51       | Bracket      | CNC5424  | 101      | ****                   |              |
| 52       | Spacer       | CNM3315  | 102      | Sheet                  | CNM4028      |
| 53       | Holder       | CNV4018  | 103      | Spring                 | CBH1710      |
| 54       | Sheet        | CNM3693  | 104      | Spacer                 | CNC5436      |
| 55       | Bracket      | CNM3917  | 105      | Screw                  | JFZ20P045FMC |
| 56       | Belt         | CNT1053  | 106      | Washer                 | CBF1061      |
| 57       | Clamper Unit | CXA6999  | 107      | Screw                  | JGZ17P025FZK |
| 58       | Guide        | CNV2891  |          |                        |              |
| 59       | Holder       | CNV3276  |          |                        |              |
| * 60     | Roller       | CNV3412  |          |                        |              |

## ● CD Mechanism Module

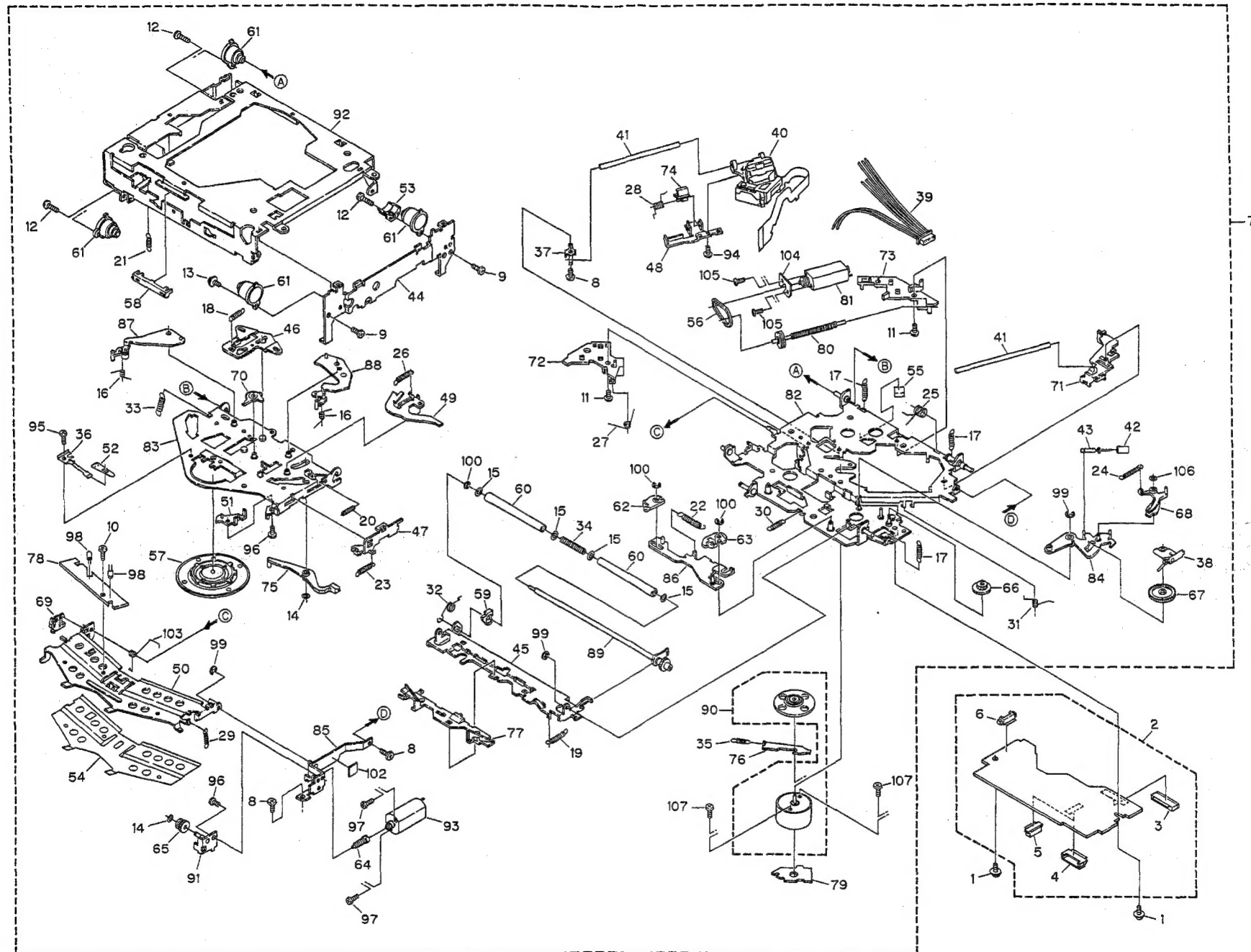


Fig.34

# 10. PACKING METHOD

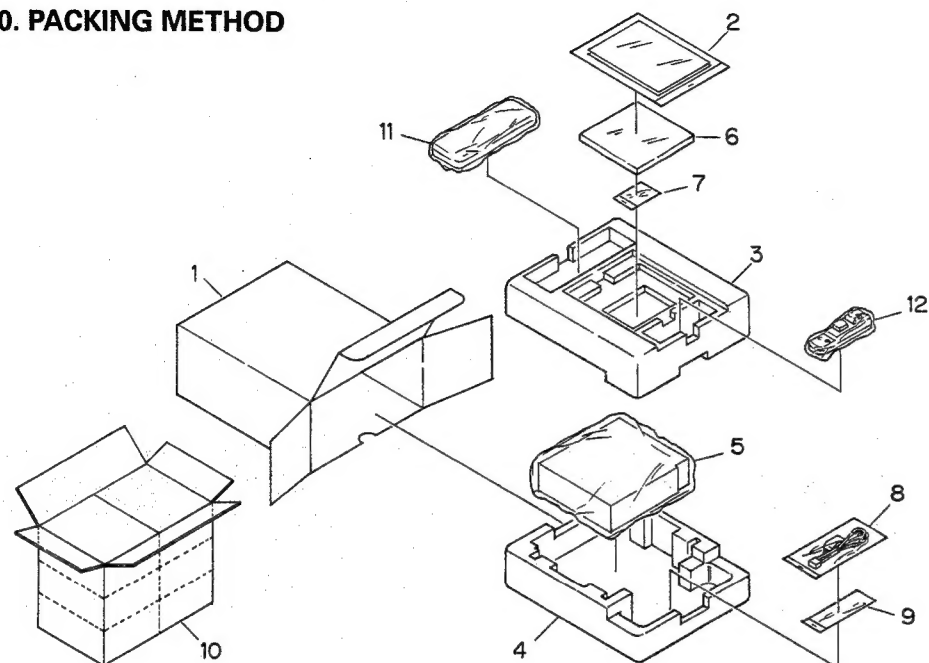


Fig.35

## Parts List

|                         | *:Non Spare Parts |                |             |
|-------------------------|-------------------|----------------|-------------|
|                         | DEH-P815/UC       | DEH-P815RDS/EW | DEH-P813/ES |
| 1 Carton                | CHG2601           | CHG2600        | CHL2602     |
| 2-1 Owner's Manual      | CRD1919           | CRD1856        | CRD1860     |
| 2-2 Installation Manual | CRD1900           | CRD1859        | CRD1899     |
| 2-3 Reference Manual    | CRB1351           | .....          | .....       |
| * 2-4 Card              | ARY1048           | .....          | .....       |
| 2-5 Owner's Manual      | .....             | CRD1857        | .....       |
| 2-6 Installation Manual | .....             | CRD1898        | .....       |
| * 2-7 Passport          | .....             | CRY1013        | .....       |
| 3 Protector             | CHP1699           | CHP1699        | CHP1699     |
| 4 Protector             | CHP1700           | CHP1700        | CHP1700     |
| 5 Polyethylene Bag      | CEG1173           | .....          | .....       |
| Cover                   | .....             | CEG1092        | CEG1092     |
| 6 CD                    | CPJ1004           | CPJ1004        | CPJ1004     |
| 7 Accessory Assy        | CEA2081           | CEA2081        | CEA2081     |
| 8 Cord Assy             | CDE4648           | CDE4648        | CDE4648     |
| 9 Accessory Assy        | CEA2066           | CEA2065        | CEA2067     |
| 10 Contain Box          | CHL2601           | CHL2600        | CHL2602     |
| 11 Case Assy            | CXA7194           | CXA7194        | CXA7194     |
| 12 Remote Control Assy  | CXA7610           | CXA7610        | CXA7610     |

- Owner's Manual
- Installation Manual
- Reference Manual

| Part No. | Model          | Language   |
|----------|----------------|--|
| CRD1919  | DEH-P815/UC    | English, French                                  |
| CRD1900  | DEH-P815/UC    | English, French                                  |
| CRD1856  | DEH-P815RDS/EW | English, Italian, French, German, Dutch, Spanish |
| CRD1859  | DEH-P815RDS/EW | English, Italian, French, German, Dutch, Spanish |
| CRD1857  | DEH-P815RDS/EW | Finnish, Norwegian, Swedish                      |
| CRD1898  | DEH-P815RDS/EW | Finnish, Norwegian, Swedish                      |
| CRD1860  | DEH-P813/ES    | English, French, Spanish, Arabic                 |
| CRD1899  | DEH-P813/ES    | English, French, Spanish, Arabic                 |
| CRB1351  | DEH-P815/UC    | English  |

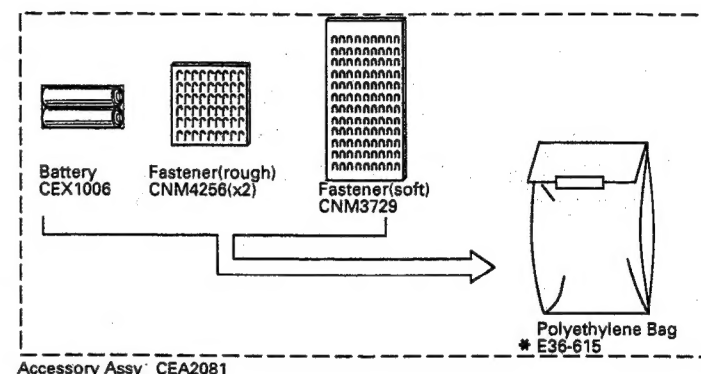


Fig.36

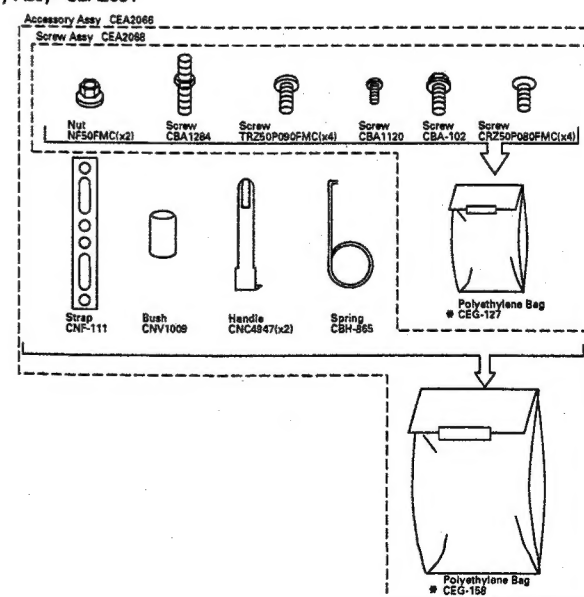


Fig.37

Accessory Assy. CEA2085

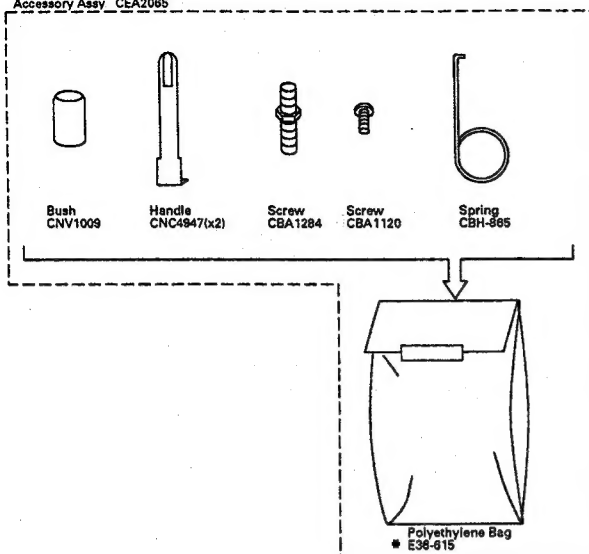


Fig.38

Accessory Assy. CEA2087  
Screw Assy. CEA2089

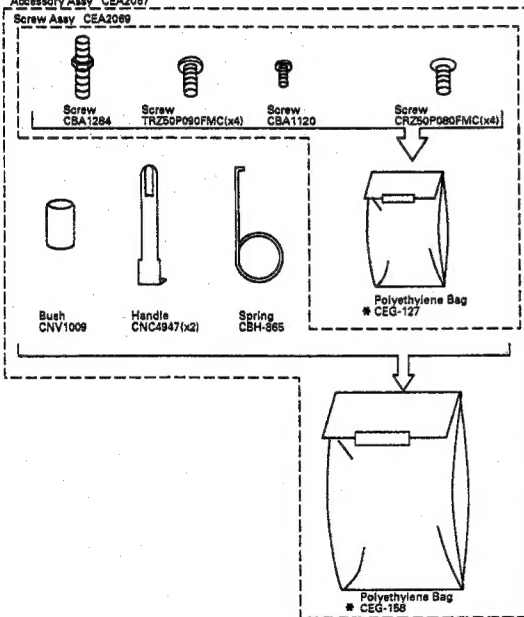


Fig.39

**PIONEER**  
The Art of Entertainment

# Service Manual

ORDER NO.  
**CRT1767**

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH RDS TUNER

## DEH-P815RDS EW8

COMPACT  
**disc**  
DIGITAL AUDIO

● As to DEH-P815RDS/EW8, refer to CRT1674 (DEH-P815RDS/EW) because of the same contents.

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